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Prevalence of Anxiety and Depression among Mothers of Newborns Admitted to Neonatal Intensive Care Units in Gaza Strip

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Dedication

To my beloved family … my great father … my sincere mother … my wonderful brothers and sisters … I deeply appreciate that you were always there in spirit with me … gave me the support and space I needed to realize this accomplishment … and inspired me with your love and warm feelings ….

Heartfelt thanks and appreciations to all those who contributed to the completion of this thesis … without your support, this work would not come to end.

Rania Breaka

Declaration

I certify that this thesis submitted for the degree of Master, is the result of my own research, except where otherwise acknowledged, and this study (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Signature:

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Rania Breaka

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Abstract

The hospitalization of a newborn to the Neonatal Intensive Care Unit is a stressful event for the family, particularly for mothers. The purpose of this study was to identify the prevalence and level of anxiety and depression among mothers of sick neonates admitted to NICU in Gaza Strip. The researcher used descriptive, correlational, analytical cross-sectional design in this study. The sample of the study was a convenience sample and consisted of 195 mothers whose babies were admitted to NICU (90 from Al-Shifa Hospital, 75 from Al Tahreer Hospital and 30 from European Gaza Hospital). For data collection the researcher used Taylor Manifest Anxiety Scale and Aaron Beck Depression Inventory, and data collection took place from March to July 2018. Cronbache alpha for Taylor Manifest Anxiety Scale was 0.836 and for Aaron Beck Depression Inventory was 0.886. Data analysis included frequencies, means, percentage, T-test, and One way ANOVA. The results of the study showed that mean age of mothers was 28.22±5.95 years, 24.6% were primiparous, 63.6% had normal vaginal delivery, 39% had university education, 90.3% were housekeepers, and 85.1% had low income. Demographic characteristics of neonates indicated that 52.8% were males, 48.2% were preterm, 30.8% had a birth weight less than 2500 g. Concerning the cause of admission to NICU, the results indicated that the most common cause was prematurity (30.8%), followed by respiratory distress (28.2%), and 71.8% of neonates stayed in NICU for 3 – 6 days. The mothers' responses on anxiety and depression scales showed that all the mothers had anxiety and 81% had depression with variation in severity. Also, 50.8% of mothers had severe to very severe anxiety and 38.5% had severe to very severe depression. Mothers from Al Tahreer hospital had higher levels of anxiety and depression compared to mothers from EGH and Al Shifa hospital. Moreover, there were statistically no significant differences in levels of anxiety related to age but older mothers (≥35 years) had higher levels of depression. The results also indicated that there were statistically no significant differences in levels of anxiety and depression related to the number of deliveries, mode of delivery, level of education, work, and income. For neonatal factors, the results reflected statistically no significant differences in levels of anxiety and depression related to gender of neonate, the cause of admission to NICU, length of stay in NICU, while mothers of premature babies and low birth weight baby had significantly higher levels of anxiety, but there were no significant differences in levels of depression. In conclusion, the study raised the need to integrate mental health services in these hospitals in order to support these mothers and treat their psychological disturbances.

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List of Abbreviations

ANOVA	Analysis of Variance
APA	American Psychological Association
CBT	Cognitive Behavioral Therapy
CS	Cesarean section
DSM	Diagnostic and Statistical Manual of Mental Disorders
EGH	European Gaza Hospital
ELBW	Extreme Low Birth Weight
GAD	Generalized Anxiety Disorder
GDP	Gross Domestic Product
GS	Gaza Strip
Km^2	Square kilometer
LBW	Low Birth Weight
MAP-UK	Medical Aid for Palestinians – United Kingdom
MOH	Ministry of Health
MV	Mechanical Ventilation
NGOs	Non-Governmental Organization
NICU	Neonatal Intensive Care Unit
NIMH	National Institute of Mental Health
NIS	New Israeli Shekel
NMC	Nasser Medical Complex
NVD	Normal Vaginal Delivery
PCBS	Palestinian Central Bureau of Statistics
PDS	Postpartum Depression Symptoms
PPD	Postpartum Depression
PTB	Preterm Birth
SAD	Social Anxiety Disorder
SepAD	Separation Anxiety Disorder

SPSS	Statistical Package for Social Sciences
VLBW	Very Low Birth Weight
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
UNRWA	United Nations Relief and Works Agency for the Palestinian Refugees in the Near East
USA	United States of America
WB	West Bank
WHO	World Health Organization

Chapter One

1.1 Introduction

Parents, especially mothers, whose their newborns were admitted to the NICU had emotional disturbances due to having a sick baby, the thought of losing their baby, and failure to fulfill traditional parenting roles (Allen et al., 2004; Joseph et al., 2007). In addition, negative emotions arise when the parents see their babies in unfamiliar incubator or connected to monitor increase their emotional distress (Heidari, et al., 2012). The stress induced by admission of an infant to NICU and separation from parents could have negative impact on mental health and wellbeing of parents, and correlated with anxiety, fatigue, depression, and sleep disruption (Busse et al. 2013).

In the same issues, it was mentioned that stressful events might have a negative impact on individual's adjustment and may provoke psychological distress, including anxiety and depression (Bostock et al., 2009; Linley et al., 2008). The birth of preterm or sick baby is a stressful event associated with parental anxiety and other psychological problems (Busse et al., 2013), and that admission of a neonate to the NICU is unexpected and is stressful for their mothers (Erdem, 2010).

Despite advances in healthcare, preterm birth (PTB) and low birth weight (LBW) remain major global health problems (Hamilton et al., 2013). Globally, an estimated 15 million babies are born preterm (before 37 weeks gestation) accounting for 11% of all live births worldwide, ranging from about 9% in higher-income countries to 12% in lower-income countries. More than 60% of PTBs occur in Africa and South Asia (World Health Organization - WHO, 2018). Locally in Gaza Strip (GS), it was reported that the crude birth rate was 31.0/1000 population, and the percentage of LBW (below 2,500 g) was 6.9% and, the number of neonates admitted to Neonatal Intensive Care Units (NICU) in the

governmental hospitals in GS during 2017 was 1823 in Al Tahreer hospital, 620 in European Gaza Hospital (EGH), and 2222 in Al Shifa hospital (Ministry of Health - MOH, 2018).

According to the estimation of the researcher, the situation of health care system and infrastructure in the GS is different from other areas all over the world; there is lack of a comfortable place where mothers can meet their baby's needs such as feeding, drinking, insufficient information regarding baby status, poor communication with healthcare providers due to work overload, not involving mothers in the care plan of their babies, and lack of social support may increase their anxiety level and depression that will affect their mental wellbeing and affect their ability to function properly and carry out their roles properly. Therefore, this study has been conducted to examine the level of anxiety and depression among mothers of sick newborns admitted to NICU during their hospitalization.

1.2 Research problem

Neonatal Intensive Care Unit is a strange environment for parents because it is noisy, crowded, busy place, with advanced medical equipment and complex medical language which act as a barrier between the parents and their newborn (Fowlie and McHaffie, 2004), and being a mother of a sick newborn in NICU elevate anxiety and depression, and during this challenging time, the support of nurses can increase mothers' abilities to cope with the stress of having a sick newborn.

In GS, from the researcher's experience, there is no parental support service unit in hospitals, which results in poor therapeutic communication between parents and health care providers. Lack of knowledge and understanding, besides the complex environment in NICU, and uncertainty about the outcome of treatment will put pressure on the mothers

and may increase their anxiety level and depression that will affect their mental well-being and affect their ability to function properly and carry out their roles properly.

Assessing psychological impact especially anxiety and depression resulted from hospitalization in NICU is a neglected aspect in health care settings, and nurses should have a leading role in psychological support of mothers. However it is important to determine the level of anxiety and depression among those mothers in order to identify the scope of the problem and suggest recommendations to alleviate these negative psychological impacts.

1.3 Justification of the study

The family is the nuclear unit in the society, and the unity of any family is important for the well-being and development of family members. Having a sick baby in NICU is traumatic event to the parents (especially the mother) and will impose negative impact on the family system and parent's capacity for emotional regulation, and parent-infant attachment (Edell-Gustaffson et al. 2015).

Psychological support and provision of knowledge to mothers are of great importance during their newborn hospitalization in NICU to increase their understanding and decrease the negative psychological impact during this stressful event.

According to the researcher's review of previous papers, several studies talked about depression and anxiety with its effect on mothers of newborns admitted to NICU in some countries like Jordan and Turkey (Al Maghaireh et al. 2017; Erdem 2010), but within the researcher's knowledge, no previous published studies were conducted in GS among mothers of NICU babies.

So, this study would be the first one that assessed anxiety and depression among mothers of sick newborns admitted to NICU in GS. Moreover, the results of this study could highlight the need for developing and implementing a strategy to reduce the risk of developing anxiety and depression among mothers of sick newborns admitted to NICU.

1.4 Goal of the study

The goal of the study is to estimate the total scores of anxiety and depression among mothers of sick newborn admitted to NICUs in Gaza Strip.

1.5 Objectives of the study

- To assess the level of anxiety among mothers of sick newborn admitted to NICUs in Gaza Strip.
- To assess the level of depression among mothers of sick newborn admitted to NICU in Gaza Strip.
- To identify the relationship between anxiety and depression among mothers of sick newborn admitted to NICUs in Gaza Strip.
- To determine the relationship between sociodemographic characteristics and anxiety level among mothers of sick newborn admitted to NICUs in Gaza Strip.
- To determine the relationship between sociodemographic characteristics and depression level among mothers of sick newborn admitted to NICUs in Gaza Strip.
- To suggest recommendations that might help in decreasing level of anxiety and depression among mothers of sick newborn admitted to NICU in Gaza Strip.

1.6 Questions of the study

- What is the overall scores for anxiety and depression among mothers of sick newborn admitted to NICUs in Gaza Strip?

- What is the level of anxiety among mothers of sick newborn admitted to NICUs in Gaza Strip?
- What is the level of depression among mothers of sick newborn admitted to NICUs in Gaza Strip?
- Is there a relationship between anxiety and depression among mothers of sick newborn admitted to NICUs in Gaza Strip?
- Is there a relationship between sociodemographic characteristics and anxiety level among mothers of sick newborn admitted to NICUs in Gaza Strip?
- Is there a relationship between sociodemographic characteristics and depression level among mothers of sick newborn admitted to NICUs in Gaza Strip?
- What are the suggested recommendations that might help in decreasing level of anxiety and depression among mothers of sick newborn admitted to NICUs in Gaza Strip?

1.7 Context of the study

1.7.1 Sociodemographic context

Palestine lies within an area of 27,000 square kilometers (Km^2), expanding from Ras Al-Nakoura in the north to Rafah in the south (annex 1). Palestinian territories is divided into three areas separated geographically; the West Bank (WB) 5.655 Km^2, GS 365 Km^2 and East Jerusalem. Based on estimates prepared by the Palestinian Central Bureau of Statistics (PCBS), the estimated population in Palestine is approximately 4.95 million. Male gender consists of 2.52 million while female gender consists of 2.43 million. The estimated population in the WB is about 3.01 million, including 1.53 million males and 1.48 females, while the population in GS is estimated to be over 2 million, including approximately 988,000 males and 956,000 females. The population density (capita/km^2) is 823 (532 in WB and 5324 in GS) (PCBS, 2017). Latest reports in August 2018 demonstrated that total population is 5,065 million with male to female ratio 103.4:100, and 73.6% of the

population is urban, and the median age is 19.6 years (www.worldometers, 2018). Natural increase rate accounts for 2.8 (2.5 in WB and 3.3 in GS), life expectancy for males 72.1 years and for females 75.2 years, average household size 5.2 (4.8 in WB and 5.7 in GS), total fertility rate 4.1 (3.7 in WB and 4.5 in GS), infant mortality rate 18.2 (17.0 in WB and 19.6 in GS) (PCBS, 2017).

1.7.2 Economic context

The Palestinian economy suffers from continuous pressure caused by long-term siege, imposed by Israeli occupation for more than 12 years. Economic status in the Palestinian territories is very low. A significant increase in poverty rates occurred in GS from 38.8% in 2011 to 53% by the end of 2017 (United Nations Office for the Coordination of Humanitarian Affairs - OCHA, 2018). Gross Domestic Product (GDP) is estimated about 440.2$ (576.0 in WB and 248.7 in GS), unemployment rate accounted for 18.2% in WB and 41.7% in GS and for females unemployment rate is 44.7% (29.8% in WB and 65.2% in GG) (PCBS, 2017).

1.7.3 Health care system

The Palestinian health system consists of different parties. The main parties that offer health services are the Ministry of Health (MOH), NGOs, United Nations Relief and Works Agency for Palestinian Refugees in the Near East (UNRWA), the military health services, and the private sector. The total number of hospitals in Palestine is 81 hospitals, 51 of them in WB including east Jerusalem and 30 in GS. The number of hospitals owned by MOH is 27 hospitals (14 in WB with bed capacity 1661 beds and 13 in GS with bed capacity 1664 beds). The number of physicians working in different centers and units of MOH is 2529 physicians, with 5.3 physicians per 10,000 population of Palestine; 4.1 physician per 10,000 populations in WB and 7.0 physician per 10,000

populations in GS, and the number of nurses working in MOH in GS is 3580 nurse representing 26.3% of total employees in MOH, and the number of midwives was 337 representing 2.5% of total employees (MOH, 2018).

1.7.3.1 NICU in Al Tahreer hospital in Khanyounis

The NICU in Al Tahreer hospital is divided into two sections: Section (A) equipped with 15 incubators and 5 mechanical ventilators in the main hall and 3 incubators in the reception. Neonates who suffer from serious health conditions that need intensive therapy and mechanical ventilation are admitted to this section. Examples of admitted cases include preterm, very low birth weight (VLBW) and extremely low birth weight (ELBW) neonates, and respiratory failure. Section (B) admits neonates with moderate health conditions that do not need intensive therapy including simple transient tachypnea, neonatal jaundice, acute bronchitis, gastroenteritis and mild respiratory diseases. The NICU is a well-equipped unit with hemodynamic monitoring facilities and mechanical ventilators to meet the neonatology demands in Khanyounis and Rafah, and this imposes heavy workload on medical staff in the presence of a shortage of many consumables and drugs. In 2014, 1144 neonates were treated in the unit, the number increased to 1645 in 2015, and the number increased further in 2016 and reached 1823 neonates. The NICU in Al Tahreer hospital has a well-trained staff including 14 specialized physicians and 12 qualified NICU nurses. All the nurses attended special training courses in neonatal advanced life support, and these courses organized by cooperation between MOH and Medical Aid for Palestinians (MAP-UK). In 2016, a total of 1823 neonates had been treated in NICU (Nasser Medical Complex - NMC, 2016).

1.7.3.2 NICU in European Gaza Hospital (EGH)

The NICU in EGH consists of 12 incubators and 6 mechanical ventilators. Each incubator is connected to the hemodynamic monitor. There are 10 incubators in the main hall and 2 incubators in two isolation rooms. Advanced blood gas analyzer is available in the unit. Because there is no maternity department in EGH, the unit admit neonates referred from other hospitals with complicated health conditions that need intensive therapy. Causes of admission include prematurity, very low birth weight, septicemia, respiratory distress, congenital anomalies, jaundice, and neonates' undergone major surgical procedures such as esophageal atresia. During the year 2017, a total of 617neonates were treated in the unit. The number of pediatricians specialized in neonatal intensive therapy who are working in the unit is 6 physicians, and the number of nurses is 20 qualified nurses. All the nurses are trained to work in NICU and all of them completed a course in neonatal advanced life support, and 8 nurses completed a training course of three months in Al Makased hospital in East Jerusalem, and the head nurse has long years of experience in NICU in Israeli occupation hospitals (Verbal interview with head nurse NICU, August 2018).

1.7.3.3 NICU in Al Shifa hospital

Al Shifa hospital is the largest one in GS and WB with bed capacity about 700 beds. The NICU in Al Shifa hospital is the biggest unit in GS. It consists of three floors with a total of 43 incubators. The first floor contains 14 incubators and 2 incubators in the reception, the second floor contains 16 incubators and 3 incubators in the reception, and the third floor contains 6 incubators and 2 incubators in the reception. All the incubators are connected to hemodynamic monitors, and a total of 20 mechanical ventilators are available in the place, and 3 advanced blood gas analyzers. There are 59 qualified nurses working in the NICU in addition to 10 volunteer nurses. Also, there are 15 neonatologists and pediatricians working in the unit. In 2016, a total of 2310 neonates admitted to NICU and

183 (7.9%) of them died, and in 2017, a total of 2222 neonates admitted to the unit and 230 (10.35%) of them died according to Al Shifa hospital annual statistics. Most of the admissions were premature babies with low birth weight, respiratory distress who need ventilatory support, septicemia, congenital anomalies, and neonates underwent major surgical procedures such as esophageal atresia (Verbal interview with head nurse NICU in Al Shifa hospital, 2018).

Month	Al Shifa	Al Tahreer	EGH
Total	2222	1823	620
Average / month	185	152	52

1.8 Definition of terms

Anxiety

The American Psychological Association (APA) defines anxiety as "an emotion characterized by feelings of tension, worried thoughts and physical changes like increased blood pressure". These disorders affect how we feel and behave and can cause physical symptoms. Mild anxiety is vague and unsettling, while severe anxiety can seriously affect day-to-day living (APA, 2017).

The researcher defines anxiety operationally as the uncontrollable worry of the mother about the health of her baby as measured by the scores obtained on Taylor Anxiety Manifest Scale.

Depression

Depression is a common and serious medical illness that negatively affects how an individual feels, the way you think and how you act. Depression causes feelings of sadness

and/or a loss of interest in activities. It can lead to a variety of emotional and physical problems and can decrease a person's ability to function at work and at home (APA, 2017).

The researcher defines depression operationally as the sadness of the mother caused by admission of her baby to NICU as measured by the scores obtained on Aaron Beck Depression Inventory.

Neonate

Neonate is a child under 28 days of age (WHO, 2017).

The researcher defines neonate operationally as any neonate who was admitted to NICU and stayed for 3 days and more in the selected hospitals.

Neonatal Intensive Care Unit

Newborn babies who need intensive medical attention are often admitted into a special area of the hospital called NICU. The NICU combines advanced technology and trained healthcare professionals to provide specialized care for the tiniest patients (Stanford Children's Health, 2017).

The researcher defines NICU operationally as a specialized department for the treatment of sick neonates in the governmental hospitals in GS.

1.9 Layout of the study

This study consists mainly of five chapters: introduction, conceptual framework and literature review, methodology, results and discussion, conclusion and recommendations.

The first chapter presented a general introduction to the study, where a brief background regarding the subject of the study was provided. The researcher illustrated the problem

statement, justification for conducting the study, the general goal and specific objectives, research questions, definition of terms and context of the study.

The second chapter included two parts; conceptual framework where the researcher provided a schematic diagram of the conceptual framework of the study, and the second part presented the literature review related to the study topic and variables. In-depth detailed theoretical inquiry including previous studies was presented to enrich the study.

The third chapter described methodology including study design, population, sample, eligibility criteria, instruments, data entry and analysis, ethical considerations, and limitations of the study.

The fourth chapter presented the study results and discussion. The researcher presented the results in form of figures and tables that make it easy for the reader to understand and make comments. The results were discussed in relation to available previous studies that directly related to the topic of this study and its objectives.

Finally, in the fifth chapter, the researcher presented the conclusion, recommendations, and suggestions for further research in the light of the study results.

Chapter Two

Conceptual framework and literature review

2.1 Conceptual framework

The conceptual framework was designed by the researcher based on the review of the available literature. The Conceptual framework is the map that guides the design and the implementation of the study and its effect mechanism for illustration and summarizing the whole study variables.

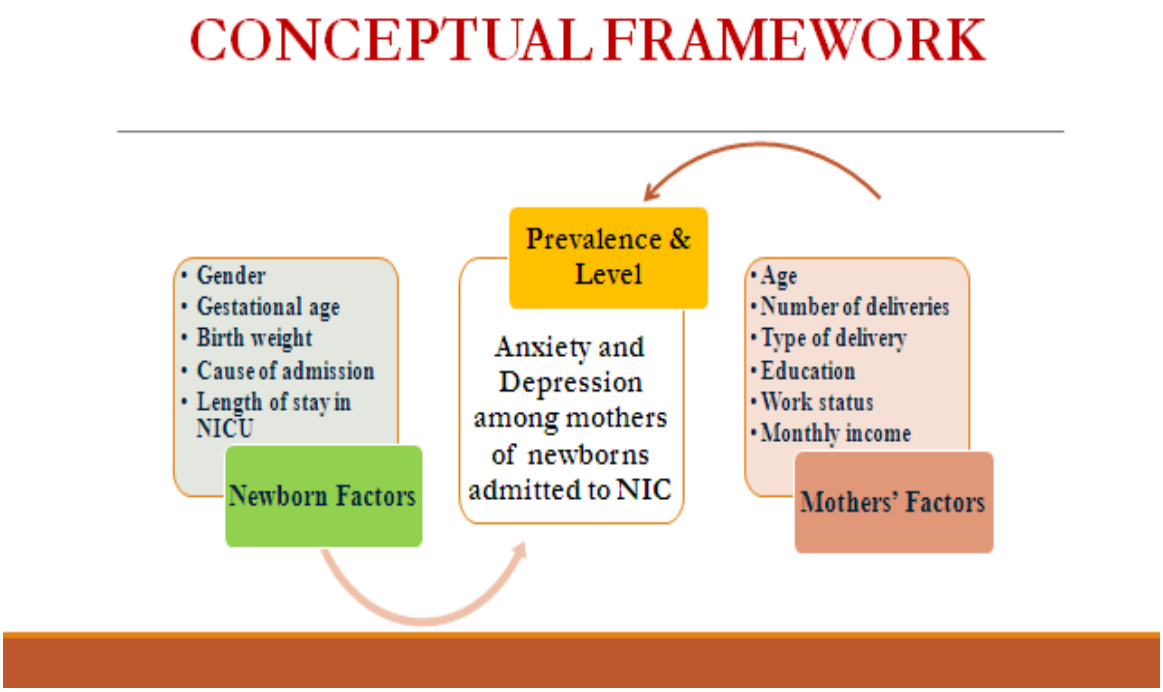

Figure (1): Diagram of conceptual framework diagram (self-developed)

The diagram indicated that two main factors affect anxiety and depression among mothers' of NICU neonates:

Neonatal factors: including

According to the perception of the researcher, gender of neonate which is a culturally sensitive issue as families pay higher interest in the male newborn in our culture, so the researcher expects that gender of the newborn may affect the psychological state of mothers.

Gestational age may contribute to recovery from illness as it is expected that preterm newborns have lower rates of survival and thus increasing levels of anxiety and depression among mothers (Umasankar and Sathiadas, 2016).

Cause of admission to NICU is another factor, it is expected that newborns who are admitted to NICU with severe illness and need mechanical ventilation will have poor prognosis compared to newborns with less severe conditions, thus admission to NICU with severe illness may contribute to higher levels of anxiety and depression among mothers.

Length of stay in NICU also interferes with the psychological status of mothers, and it is expected that longer stay in NICU may predispose to more complications and increase mothers' worries and could increase anxiety and depression symptoms among mothers (Erdem, 2010).

Birth weight is related to gestational age and health status. It is expected that newborns with low birth weight may have more severe illness and as a consequence higher levels of anxiety and depression among mothers.

Mothers' factors: including;

Age of mother; it is expected that younger mothers will have less experience in illness and hospitals and thus will have higher levels of anxiety and depression compared to older age mothers.

Number of deliveries; mothers with previous deliveries usually have more experience compared to mothers who gave birth for the first time, so, it is expected that mothers with a higher number of deliveries will have better psychological coping and lower levels of anxiety and depression.

Level of education; mothers who have high level of education usually have a better understanding of their newborn condition and have more trust in health care providers and thus would have lower worries and lower level of anxiety and depression.

Work status; mothers who are working are busier and usually away from their babies longer times than mothers who are not working, and as a consequence it is expected that working mothers may have higher levels of anxiety and depression.

Family income; high family income enables the mother to pay for treatments and nutrients for their babies, while families with low income may not be able to afford for healthy nutrients, and that increase their worries about their babies and increase their anxiety and depression levels (Mizrak et al., 2015; Niranjan, 2015).

2.2 Literature review

2.2.1 Background

It is known that everyone is exposed to stressful events during the life stages. The hospitalization of preterm and LBW infants at the NICU is a stressful event for the family, particularly for the mothers (Busse et al., 2013; Yaman and Altay, 2015). The mother's perception of hospitalization is negative, and feelings of guilt, insecurity, fear and sadness are common (Barr, 2015; Sipos et al., 2013), and that could be due to the hospital's stressful routine, the painful and invasive procedures to which her baby is subject, and a temporary absence from her home and her other children (Grosik et al., 2013).

Long-term exposure to stress may lead to the development of emotional and mental symptoms; among the prevailing manifestations are anxiety and depression. Anxiety is a psychological and physiological state characterized by somatic, emotional, cognitive and behavioral components, and can create feelings of fear, worry, uneasiness and dread (Bouras and Holt, 2007), while depression manifestations may include depressed mood, difficulties in concentration or making decisions, feeling of worthlessness and guilt, and social withdrawal and agitation (APA, 2000).

2.2.2 Anxiety disorders

Anxiety disorders are a group of mental disorders characterized by significant feelings of worry and fear. These feelings may cause physical symptoms, such as fast heart rate and shakiness, and that anxiety disorders include generalized anxiety disorder, specific phobia, social anxiety disorder, separation anxiety disorder, agoraphobia, panic disorder, and selective mutism (Diagnostic and Statistical Manual of Mental Disorders – DSM, 2013).

2.2.3 Classification of anxiety disorders

2.2.3.1 Generalized Anxiety Disorder

Generalized anxiety disorder (GAD) was first introduced as a unique diagnosis in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III) but was most often used as a residual diagnosis for individuals who did not meet diagnostic criteria for another anxiety disorder. It was not until the publication of DSM-III-R that GAD was uniquely defined by chronic and pervasive worry. According to the DSM-IV-TR, GAD is characterized by excessive, uncontrollable worry about a variety of topics that occurs more days than not for a period of at least six months. The worry causes distress and/or functional impairment, and is associated with at least three of the following features: restlessness or feeling keyed up or on edge, being easily fatigued, difficulty concentrating or having one's mind go blank, irritability, muscle tension, and sleep disturbance (APA,

2000).

GAD is a common disorder, characterized by long-lasting anxiety that is not focused on one object or situation. Those suffering from GAD experience non-specific persistent fear and worry, and become overly concerned with everyday matters; GAD is characterized by chronic excessive worry accompanied by restlessness, fatigue, concentration problems, irritability, muscle tension, and sleep disturbance (Schacter et al., 2011). Individuals with GAD look strained, with increased sweating from the hands, feet, and axillae, and they may be tearful, which can suggest depression (Gelder et al., 2005).

2.2.3.2 Panic Disorder

Panic disorder is an anxiety disorder characterized by reoccurring unexpected panic attacks. Panic attacks are sudden periods of intense fear that may include palpitations, sweating, shaking, shortness of breath, numbness, or a feeling that something really bad is going to happen, and the cause of panic disorder is unknown but risk factors include smoking, psychological stress, and a history of child abuse (APA, 2013). The maximum degree of symptoms occurs within minutes. There may be ongoing worries about having further attacks and avoidance of places where attacks have occurred in the past (National Institute of Mental Health – NIMH, 2016).

Panic disorder is usually treated with counseling and medications. The type of counseling used is typically cognitive behavioral therapy (CBT) which is effective in more than half of people (NIMH, 2013; Craske and Stein, 2016). Panic disorder affects about 2.5% of people at some point in their life, usually begins during adolescence or early adulthood but any age can be affected, and it is less common in children and older people, and women are more often affected than men (APA, 2013; NIMH, 2013).

2.2.3.3 Social Anxiety Disorder (SAD)

Social anxiety disorder (SAD) is an anxiety disorder characterized by a significant amount of fear in one or more social situations, causing considerable distress and impaired ability to function in at least some parts of daily life (NIMH, 2013). Physical symptoms often include excessive blushing, excess sweating, trembling, palpitation, nausea, and stammering may be present, along with rapid speech. Panic attacks can also occur under intense fear and discomfort. Some sufferers may use alcohol or other drugs to reduce fears and inhibitions at social events (Margot, 2004).

2.2.3.4 Separation Anxiety Disorder (SepAD)

Separation anxiety disorder (SepAD) is the feeling of excessive and inappropriate levels of anxiety over being separated from a person or place. Separation anxiety is a normal part of development in babies or children, and it is only when this feeling is excessive or inappropriate that it can be considered a disorder (Robert, 2006). SepAD affects roughly 7% of adults and 4% of children, but the childhood cases tend to be more severe; in some instances, even a brief separation can produce panic (Shear et al., 2006). Individuals with SepAD experience excessive anxiety regarding separation from home or from people to whom the individual has a strong emotional attachment (e.g., a parent, caregiver, significant other or siblings). It is most common in infants and small children, typically between the ages of 6–7 months to 3 years, although it may pathologically manifest itself in older children, adolescents and adults. Separation anxiety is a natural part of the developmental process. Unlike SepAD (indicated by excessive anxiety), normal separation anxiety indicates healthy advancements in a child's cognitive maturation and should not be considered a developing behavioral problem (Redlich, 2015).

Separation anxiety disorder is an excessive display of fear and distress when faced with situations of separation from the home or from a specific attachment figure. The severity of

the symptoms ranges from anticipatory uneasiness to full-blown anxiety about separation. SepAD may cause significant negative effects within areas of social and emotional functioning, family life, and physical health of the disordered individual (Ehrenreich et al., 2008). The duration of this problem must persist for at least four weeks and must present itself before a child is 18 years of age to be diagnosed as SepAD in children, but can now be diagnosed in adults with a duration typically lasting 6 months in adults as specified by the DSM-5 (Beesdo et al., 2009).

2.2.4 Depression

Depression is a mental disorder characterized by at least two weeks of low mood that is present across most situations, and it is often accompanied by low self-esteem, loss of interest in normally enjoyable activities, low energy, and pain without a clear cause (NIMH, 2016). People may also occasionally have false beliefs or see or hear things that others cannot, and some people have periods of depression separated by years in which they are normal, while others nearly always have symptoms present (APA, 2013). Major depressive disorder can negatively affect a person's life and general health, and between 2–7% of adults with major depression die by suicide, and up to 60% of people who die by suicide had depression or another mood disorder (Lynch and Duval, 2010).

Major depressive disorder affected approximately 3% of the world's population in 2015 (Global Burden of Disease Collaborators, 2016). The percentage of people who are affected at one point in their life varies from 7% in Japan to 21% in France, and lifetime rates are higher in the developed world (15%) compared to the developing world (11%) (Kessler and Bromet, 2013). It causes the second most years lived with disability, after low back pain. The most common time of onset is in a person's 20s and 30s. Females are affected about twice as often as males (APA, 2013; Kessler and Bromet, 2013). According to DSM-5, depressive disorders are classified as: major depressive disorder, persistent

depressive disorder, pre-menstrual dysphoric disorder, disruptive mood dysregulation disorder, substance/medication induced depressive disorder, depressive disorder due to another medical condition, and unspecified depressive disorder (Bentham, 2013). People with depressed mood can feel sad, anxious, empty, hopeless, helpless, worthless, guilty, irritable, ashamed or restless, and they lose interest in social activities, experience loss of appetite or overeating, poor concentration, difficulty in making decisions, may attempt or commit suicide, insomnia, excessive sleeping, fatigue, aches, pains, digestive problems or reduced energy may also be present (NIMH, 2013). Depressed mood may be precipitated by different life events and changes including financial difficulties, job problems, a medical diagnosis as cancer, bullying, loss of a loved one, natural disasters, social isolation, relationship troubles, separation, and catastrophic injury (Schmidt 2005).

2.2.4.1 Postpartum depression

Postpartum depression (PPD) is characterized by a depressed mood or loss of interest or pleasure in daily activities, and usually begins within four weeks postpartum. According to the fourth edition of DSM-IV, patients will be diagnosed as having depression if they have four or more of the following symptoms: insomnia, hypersomnia, psychomotor agitation or retardation, fatigue, changes in appetite, feelings of worthlessness, guilt, decreased concentration, and suicidal thoughts (Moses-Kolko et al., 2004; Beck, 2006).

It is worth to say that PPD is a common complication of childbirth and perinatal period, and affects 10-15% of new mothers, but may increase up to 35% in some demographic groups (Moses-Kolko et al., 2004). Many women who suffer from PPD do not seek psychotherapy because they are afraid of social stigma (Kabir et al., 2008). In the study carried out by Beck (2006), the results showed that 19.2% of new mothers suffered from depression during the first three months postpartum, and Hendrick (2003) found that 11.7% of mothers were diagnosed as having PPD, while Lumley, (2005) found that one-

third of women experienced symptoms of depression, but only 15% were referred to a mental health professional.

Several mood disorders are categorized under the term PPD. These mood disorders include: postpartum panic disorder (discrete periods of intense fear), the baby blues (involves frequent crying, anxiety, fatigue, insomnia, anger, sadness, and irritability), postpartum obsessive compulsive disorder (unwanted thoughts with accompanying behaviors), postpartum post-traumatic stress disorder (symptoms may include nightmares, flashbacks, exaggerated startle response, anger, or difficulty sleeping and/or concentrating), postpartum psychosis (associated with delusions, auditory and visual hallucinations, agitation, confusion, inability to eat or sleep, rapid mood swings, and suicidal thoughts) (Beck, 2006; Moses-Kolko et al. 2004; Perfetti et al. 2006; Horowitz and Janice, 2005).

2.2.5 Presence of anxiety and depression among NICUs parents

It is widely understood that having a child in the hospital is an emotionally taxing situation for parents. Parents of infants admitted to NICUs often suffer from feelings of stress, depression, anxiety, helplessness, and alienation during their infant's stay in NICU, and mothers may feel guilt, responsibility, failure, and shame about their infant's hospitalization (Obeidat et al., 2009). When their baby stays in NICU, parents usually feel powerless and helpless; therefore, they may be more stressed and vulnerable to emotional difficulties than parents of full-term babies. Furthermore, PTB could be a traumatic event that affects parents' everyday life (Clottey and Dillard, 2013; Sansavini and Faldella, 2013).

Parental stress resulted from the NICU experience is important, potentially impacting parenting behavior as well as producing long term emotional problems and health

alteration. Stress, anxiety, depression, and fatigue alter parenting behavior and perception of parental competence, parent-infant interaction, and ultimately infant outcomes such as cognitive development, emotional regulation, and health (Olshtain-Mann and Auslander, 2008; Melnyk et al., 2008; Field, 2010).

Being a mother of a sick newborn is a stressful and challenging event that can influence the mother's mental health in many ways. Mothers of infants hospitalized in the NICU are at risk for clinically significant levels of depression and anxiety symptoms (Segre et al., 2014). Recent reports indicated that 10% - 15% of women suffer from PDS symptoms, whereas approximately 10% develop an anxiety disorder after delivery (Yurdakul et al., 2009). Mothers of newborn infants who are hospitalized in the NICU exhibit high rates of aversive emotional states, including significant symptoms of depression and anxiety disorders (Jubinville et al., 2012). A longitudinal study carried out by Miles et al., (2007) found that 63% of NICU mothers had elevated depression symptoms when the infant was hospitalized and at two-months post-birth assessment, 30% still reported elevated symptoms.

Among studies of NICU mothers, prevalence estimates of clinically significant anxiety symptoms range from 18% to 43% (Carter et al., 2005; Rogers et al., 2013). Another study conducted by Segre et al., (2014) found that approximately one quarter of the NICU mothers reported elevated PDS, and moderate to severe anxiety symptoms. Another study reported that 52% of mothers experienced increased stress and 38% had significant depressive symptoms, and higher stress levels were associated with higher depressive scores (Alkozei et al., 2014). Furthermore, Garfield et al., (2015) examined PDS in mothers with premature infants in the NICU and found that 42% of women had elevated PDS. Moreover, a study carried out in Brazil indicated that 44% of mothers showed emotional symptoms such as anxiety, dysphoria or depression during their infants

admission to NICU, and after discharge from NICU the number of mothers with clinical level of emotional symptoms decreased to 26% (Padovani et al., 2004), and Davis et al., (2009) reported that about 50% of mothers of premature infants have elevated levels of anxiety symptoms during hospitalization.

The stress of having a newborn hospitalized in the NICU raises a mother's risk for significant depressive symptoms, and some studies reported that between 28% and 67% of NICU mothers reported elevated levels of depressive symptoms (Davis et al., 2003; Miles et al., 2007; Pinelli et al., 2008; Lefkowitz et al., 2010).

Moreover, Miles et al., (2007) suggested that clinically significant levels of depressive symptoms persist, and 63% of NICU mothers had elevated depression symptoms scores early when the infant was hospitalized and 30% still reported elevated symptoms at the two-month post-birth assessment. Furthermore, depressive symptoms could be severe as approximately 33% of NICU mothers reported suicidal thoughts (Lefkowitz et al., 2010). A random sample of NICU parents and term non-NICU parents were assessed at Christchurch Women's Hospital, New Zealand found that overall, levels of anxiety and depression were low in both parent groups, and compared with control parents, a higher percentage of NICU parents had clinically relevant anxiety (Carter et al., 2005).

A cross sectional study carried out in USA found that 25.5 % of NICU mothers reported clinically significant symptoms of depression, anxiety symptoms were minimal in 42.1% of participants, mild in 30.3%, moderate in 17.4%, and severe in 10.3%, and of the 53 women who reported moderate to severe levels of anxiety symptoms, 51% also reported clinically significant depression symptoms, similarly, of the 49 women reporting clinically significant depression symptoms, 55% reported moderate to severe levels of anxiety

symptoms, and overall, 14% of the sample had both clinically significant symptoms of depression and moderate to severe symptoms of anxiety (Segre et al., 2014).

A case control study carried out by Yurdakul et al., (2009) found that 29.5% of NICU mothers had depression and NICU mothers who had high PDS scores had also significantly higher anxiety scores. A prospective cross sectional study carried out in Sri Lanka included 75 mothers of babies admitted to NICU found that 76% of mothers experienced severe and extreme stress level for overall stress, the mean for overall stress was 4.01±0.87 (Umasankar and Sathiadas, 2016). Another study carried out by Niranjan (2015) found that 90% of mothers whose infants admitted to NICU were extremely stressful and 10% of mothers were very stressful. In addition, Ionio et al., (2016) found that mothers of preterm babies admitted to NICU showed higher scores than mothers of full-term babies in tension-anxiety, depression, anger-hostility, and fatigue.

Within the researcher's knowledge, very few studies conducted in Arab countries that assessed prevalence of anxiety and depression among mothers of NICU babies. A study carried out in Jordan investigated stress levels among Jordanian parents of infants in the NICU indicated that both parents experienced high levels of stress, anxiety, depression and sleep disturbance, but mothers experienced higher levels of stress compared to fathers, with positive correlations between stress and anxiety and depression (Al Maghaireh et al., 2017). Another study carried out in Egypt aimed to assess the relationship between anxiety, depression, and mother-infant bonding. The results showed that mothers with premature babies suffer from severe level of anxiety and have high negative attitude toward their babies. Also, the study revealed that there was no statistical significant relationship between mothers' depression, anxiety and their bond with their babies. However, there was statistically significant direct relationship between mothers' depression and anxiety (Abdelsalam, 2017).

In GS, several studies assessed anxiety and depression among different target groups but no study targeted mothers of NICU babies. Unpublished study carried out to compare mental health and quality of life among wives of martyrs after the war against GS on December 2008 and wives who live with their husbands. The results showed that martyrs' wives had a higher level of depression compared to women who live with their newly married husbands (m = 24.23 ± 10.45 and 22.76 ± 10.05 respectively) and higher anxiety (M = 20.30 ± 5.32 and 22.25 ± 5.97 respectively). Also, there was significant negative relationship between quality of life and mental health among martyrs' wives (Al Rekeb, 2011). Another study conducted in GS among orphaned children aged between 9 – 16 years found that 49% had depression and 28.5% had anxiety (Thabet et al., 2007). Moreover, the study carried out by Al Sawaf (2015) found that 16.7 of orphans who participated in the study had anxiety and 37.6 had depression. Another study included university students in GS found moderate level (62.64%) of anxiety among study participants (Jaber, 2012).

2.2.6 Factors contributing to emotional stress among NICU parents

Admission and treatment in NICU are stressful events for mothers that will evoke psychological disturbances which may affect the mothers' quality of life and disturb their role as mothers. Emotional state will be affected by different factors including sociodemographic and environmental factors. Risk factors for postpartum mood disorders include several sociodemographic and obstetric parameters. Although, the risk factors that predict PPD have been studied in details in mothers of term healthy babies, there are limited studies about maternal psychological problems after the admission of the baby to NICU (Yurdakul et al., 2009).

Parents' experience of stress is influenced by some factors including, birth variables, by the baby’s immaturity and physical fragility (Grosik et al., 2013), other factors including

NICU environment such as sights, sounds, equipment noises, a stressful routine, and a lot of movement by health professionals, while maternal mental health factors, demographic factors, pregnancy factors and infant characteristics were not associated with increased stress (Alkozei et al., 2014).

A study carried out in Turkey found that maternal anxiety was significantly related to duration of hospitalization, and anxiety was higher if their infant was a boy, while maternal age, education, income; planned pregnancy, having complications of pregnancy, receiving antenatal care, type of labour, gestational age of the infant at birth, reasons for hospitalization of the infant and birth weight did not affect maternal anxiety levels (Erdem, 2010). In addition, lack of a proper environment where mothers can meet their baby's physiological needs (feeding, drinking, sleeping, etc.), as well as the sickness of their baby, lack of information regarding treatment and medical operations, lack of communication with health professionals, not participating in the care of their infants, and lack of social support can lead to elevated anxiety levels (Calisir et al., 2008; Lefkowitz et al., 2010). Another study carried out in Turkey by Mizrak et al., (2015) found that there was no significant relationship between socio-demographic characteristics (age, educational status, occupational status and income level) and anxiety levels of mothers, but a significant relationship was found between presence of supporting systems and anxiety levels of mothers with infants in the NICU as mothers who reported no support system showed significantly higher anxiety levels compared to those with support systems, furthermore, there was no significant relationship between birth weight, gender of the baby, and duration of hospitalization.

Parents of infants admitted to NICU are believed to experience the heightened distress compared to the parents of healthy infants. Carter et al., (2005) reported that average level of anxiety, and depressive symptoms in both the NICU and control parents was low,

suggesting that for most parents the hospital experience was not associated with depression and anxiety symptoms, while having a previous NICU admission and be in a lower family income, and infant prematurity were associated with higher levels of symptomatology in both NICU mothers and fathers. Yurdakul et al., (2009) reported that the majority of babies admitted to NICU delivered by cesarean section (CS) mode, and that maternal age, working status, education level, parity, and gender of the baby did not contribute to higher levels of maternal anxiety and depression. Umasankar and Sathiadas, (2016) found that NICU physical environment, alteration in parental role, infant characteristics like gestational age, birth asphyxia and sepsis are related to high stress levels in mothers. Another study carried out by Niranjan (2015) indicated that factors that contributed to higher stress included being urban family, and previous NICU experience.

2.2.7 Burden of admission to NICU

Preterm birth is a multi-problematic event that presents two main consequences: first of all, the medical and neurophysiological conditions of the newborn baby put him or her in danger particularly for infants with a weight lower than 1500 grams and with a gestational age less than 32 weeks, and secondly, it could have a negative impact both on the mother and father's relationship and on parent–child interactions (Müller-Nix and Ansermet, 2009). Although it has been widely demonstrated that preterm infants are at risk for developing deficit and delays, the underlying causes of these poorer developmental outcome and the role of parents, are still less understood.

Preterm birth potentially combines both biological and environmental factors, and it is estimated that one month after preterm birth, parents are shocked by the physiological and psychological conditions of their baby (Hoffenkamp et al., 2015). The event could interfere with their transitions into parenthood: the adverse medical condition of their baby prevents parents from taking care immediately of their newborn child (Axelin et al., 2010).

Furthermore, after birth the difficult medical conditions of preterm babies and the mechanical environment in the NICU usually prevent a skin-to-skin relationship between children and their parents, and this could be dangerous for the future development of the babies (Wigert et al., 2010). Several studies have demonstrated the importance of parents' extended presence and skin-to-skin contact with their infants for the infants' long-term outcomes. Positive effects of skin-to-skin contact between children and their parents are related to effects on the parents (Green and Phipps, 2015).

Preterm birth accounts for the majority of high risk newborns as they face a large number of problems. Thus caring for critically ill babies remains one of the most demanding and challenging aspects in the field of pediatrics. Infections are the major problems in NICU and are the leading cause of admissions and mortality in developing countries. The major causes of neonatal deaths globally were estimated to be infections (35%), PTB (28%), and asphyxia (23%). Sepsis is the commonest cause of neonatal mortality and is probably responsible for 30 – 50% of the total neonatal deaths each year in developing countries (Aijaz et al., 2012). Moreover, each year about four million newborns die worldwide, and it is estimated that up to 50% of all neonatal deaths occur within the first 24 hours after birth, and 75% by one week of age (Lawn et al., 2005), and over 98% of these deaths occur in developing nations with the highest rates in Africa, and many more newborns who survive have brain insults, resulting in severe disabilities such as convulsive disorders, cerebral palsy and cognitive impairments, thus adding further burden to healthcare, social systems and the home environment (Mwaniki et al., 2010).

Preterm birth imposes considerable burden on health, education and social services, as well as on families and caregivers. A study carried out in Canada aimed to characterize the burden of premature birth including resource utilization, direct medical costs, parental out-of-pocket costs, education costs, and mortality. The results found that two-year survival

was estimated at 56.0% for early preterm infants, 92.8% for moderate preterm infants, and 98.4% for late preterm infants. Per infant resource utilization consistently decreased with age. For moderately preterm infants, hospital days ranged from 1.6 at age two to 0.09 at age ten. Cost per infant over the first ten years of life was estimated to be $67,467 for early preterm infants, $52,796 for moderate preterm infants, and $10,010 for late preterm infants. Based on population sizes this corresponds to total national costs of $123.3 million for early preterm infants, $255.6 million for moderate preterm infants, $208.2 million for late preterm infants, and $587.1 million for all infants (Johnston et al., 2014). Another study carried out in Turkey aimed to assess hospital costs of preterm babies admitted to NICU found that the mean total hospitalization cost and the daily cost of a preterm was determined as $4187 and $303 respectively (Cömert et al., 2012).

It is worth to say that having a newborn admitted to NICU is demanding for families in GS because of the low economic status and high rate of poverty. Some families can't afford to pay for transportation to come to the hospital every day, and sometimes the family has to buy some medication that are not available in the hospital, and that added extra pressure on the family and would increase their stress.

Chapter Three
Methodology

This chapter addresses issues related to methodology procedures used to answer the research questions. The chapter commences with study design, study population, sample and sampling method, study setting, and period of the study and eligibility criteria of the selection of study participants. In addition, this chapter presents the construction of the questionnaire, ethical consideration and procedures of data collection and data analysis.

3.1 Study design

In order to answer the study questions, the researcher used a descriptive, correlational, analytical, cross-sectional design, which is useful for describing variables of the study as they naturally occur without interference from the researcher. Cross sectional studies are generally carried out on a population at a point of time or over a short period. Also, it examines the association between variables; and characterized as economic, quick and managed easily (Polit and Beck, 2012).

3.2 Study Population

The study population included all the mothers whose their neonates have been admitted to NICU in governmental hospitals in GS, and according to records of the three hospitals (Al Shifa Medical Complex, Al Tahreer hospital, and EGH), an average of 389 neonates were admitted to NICU monthly during the year 2017 (Annex 2).

3.3 Sample size and sampling method

By using the sample size calculator at 95% confidence level and confidence interval 5, the study sample consisted of 195 mothers whose their neonates have been admitted to NICU at the three governmental hospitals in GS. The sample of this study was a convenience sample. Mothers who have participated in the study were selected randomly from those

who met inclusion criteria. Those mothers who can read and write, and their baby was admitted in the NICU for three days and more. Those mothers were selected after three days of admission because those who stayed in NICU for one or two days and discharged usually have mild problems and may not provoke psychological problems to the mother, but neonates who stayed longer usually have more serious problems that require longer time for treatment and that may produce psychological stress to mothers (Erdem, 2010).

Mothers received explanation about the purpose of the study and have been asked to participate in the study voluntary. Those mothers who agreed to participate in the study received the questionnaire and filled it according to instructions given by the researcher.

Determine Sample Size

Confidence Level: (•) 95% ( ) 99%

Confidence Interval: 5

Population: 389

Sample size needed: 194

3.4 Setting of the study

The study had been carried out in NICUs at Al Shifa Medical complex, Al Tahreer hospital, and EGH, that represent all the hospitals having NICU in GS.

3.5 Period of the study

The study was conducted during the period from November 2017 to September 2018. Data collection was carried out from March to July 2018.

3.6 Eligibility criteria

3.6.1 Inclusion criteria

- Mothers of neonates admitted in NICUs at the selected hospitals, and their infants stayed in NICU for 3 days or more.

3.6.2 Exclusion criteria

- Mothers who can't write or read.
- Mothers who are divorced or have troubles with their husbands.
- Mothers who have previous mental disorders.

3.7 Instruments of the study

The researcher adopted two international questionnaires to implement the study:

- Taylor Manifest Anxiety Scale (Annex 4, 5).
- Aaron Beck, Depression Inventory (Annex 6, 7).

3.7.1 Taylor Manifest Anxiety Scale

The scale was translated to Arabic language by Mustafa Fahmey and Mohammad Ahmed Ghaley, Cairo University. This scale is widely accepted in Palestinian culture as used by (Thabet, Abu Tawahina et al, 2006).

The scale consists of 50 items describing events that may evoke anxiety. The scale score was coded as: yes (1) and no (zero).

The total score ranges from (0 to 50) as follows:

(0 – 16) very mild anxiety, (17 – 19) mild anxiety, (20 – 24) moderate anxiety, (25 – 29) above moderate anxiety, (30 – 34) severe anxiety, (35 – 50) very severe anxiety.

3.7.2 Aaron Beck Depression Inventory

The scale consists of 21 items. It was translated to the Arabic language by Ahmed Abed El-Khaleg, and modified by Asma Al-Hussein 2002. Scoring for each item ranges from (0 to 4) scores. The total scores for the scale range from (0 – 73) as follows:

(0 – 9) no depression, (10 – 15) mild depression, (16 – 23) moderate depression (24 – 36) severe depression, and (37 and above) very severe depression.

3.7.3 Reliability of the study instruments

The researcher conducted a pilot study on 30 questionnaires to check reliability of the questionnaires. Cronbache Alpha method was used as presented in the table below.

Table (3.1): Cronbache Alpha Coefficient

Instrument	No. of Items	Alpha Coefficient
Taylor Anxiety Manifest Scale	50	0.836
Aaron Beck Depression Inventory	21	0.886

3.8 Data collection

Data have been collected by the researcher via self-administered questionnaire. A consent form was attached to each questionnaire (Annex 3). Time estimation for filling of the two questionnaires is about 25 minutes.

3.9 Data entry and analysis

The data were analyzed by using the SPSS program version 22. The stages of data analysis included: coding the questionnaire, data entry, and data cleaning. Data cleaning were performed by reviewing frequency tables, random selection of questionnaire to ensure

accurateness of data entry. The frequencies and descriptive data (means, ranges, percentage, and standard deviations) were conducted to assess the research variables.

Also, analysis of variance (One Way ANOVA), post Hoc test and T-test were used to find out the significance and differences between variables, and Pearson correlation test to identify the relationship between anxiety and depression.

3.10 Ethical and administrative considerations

The ethical, administrative considerations and procedures are very important conditions in applying the research. All of the ethical procedures have to be followed perfectly without ignoring any of them.

- An official letter of approval was obtained from Al- Quds University to conduct the study.
- An official letter of approval was obtained from Helsinki Committee in Gaza Strip (Annex 7).
- An official letter was obtained from MOH to conduct this study (Annex 8).
- Every participant was provided with an explanatory form about the study including the purpose of the study, confidentiality of information and some instructions.

3.11 Limitations of the study

The limitation of the study was the mothers of neonate not presented 24 hour with their newborns in hospitals, that we need to wait their coming by chance. Other limitation was long hour's cut-off electricity which delayed internet searching and typing of research paper. In addition, financial constraints due to reduction in salaries interfered with the research being accomplished in designated time.

Chapter Four

Results and discussion

This chapter presents the findings of statistical analysis of data. Description of sociodemographic characteristics of participants is illustrated. In addition results of different variables were identified. Moreover, the differences between selected variables were explored and discussed in relation to literature review and previous studies.

4.1 Descriptive results

4.1.1 Sociodemographic characteristics of study participants

4.1.1.1 Characteristics of mothers

The study included 195 mothers whose their babies admitted to NICU in Al Shifa hospital, Al Tahreer hospital and EGH. Their characteristics are illustrated in the following figures and tables.

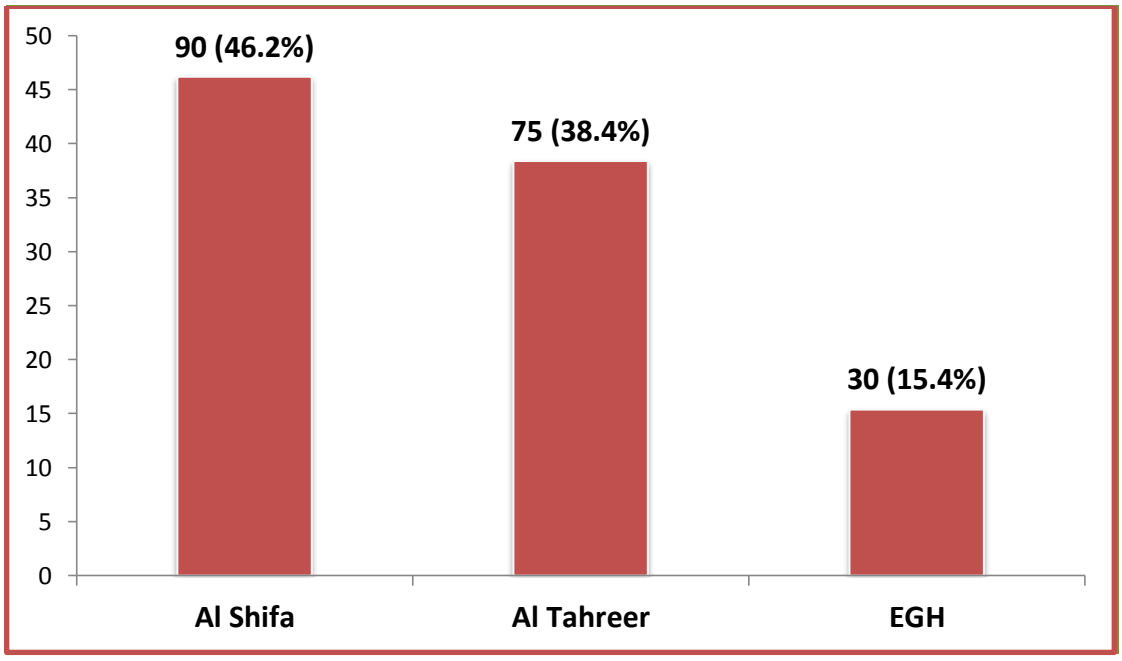

Figure (2): Distribution of mothers by hospital

Figure (2) showed that 90 (46.2%) of study participants were from Al Shifa hospital which is the largest hospital in GS, 75 (38.4%) from Al Tahreer hospital, and 30 (15.4%) from EGH.

Table (4.1): Distribution of mothers by demographic characteristics (N = 195)

Variable	**N**	**%**
Age		
24 years and less	66	33.8
25 – 34 years	93	47.7
35 years and more	36	18.5
Mean age = 28.22 years SD = 5.954		
Number of deliveries		
Primiparous	48	24.6
2 – 4 deliveries	86	44.1
5 deliveries and more	61	31.3
Type of delivery		
Normal vaginal delivery (NVD)	124	63.6
Cesarean section (CS)	71	36.4
Level of education		
Prep school	29	14.8
Secondary school	90	46.2
University	76	39.0
Work status		
Working	19	9.7
Do not work	176	90.3
Family income		
Less than 1000 NIS	166	85.1
1000 NIS and more	29	14.9

NIS= New Israeli Shekel

Table (4.1) showed that the mean age for mothers was 28.22 ±5.954, and the highest number of mothers 93 (47.7%) aged 25 – 34 years, 86 (44.1%) delivered 2 – 4 times, more than two thirds 124 (63.6%) had NVD, 90 (46.2%) had secondary school education, the majority of mothers 176 (90.3%) do not work, and the majority of them 166 (85.1%) had low income less than 1000 NIS.

4.1.2 Characteristics of neonates

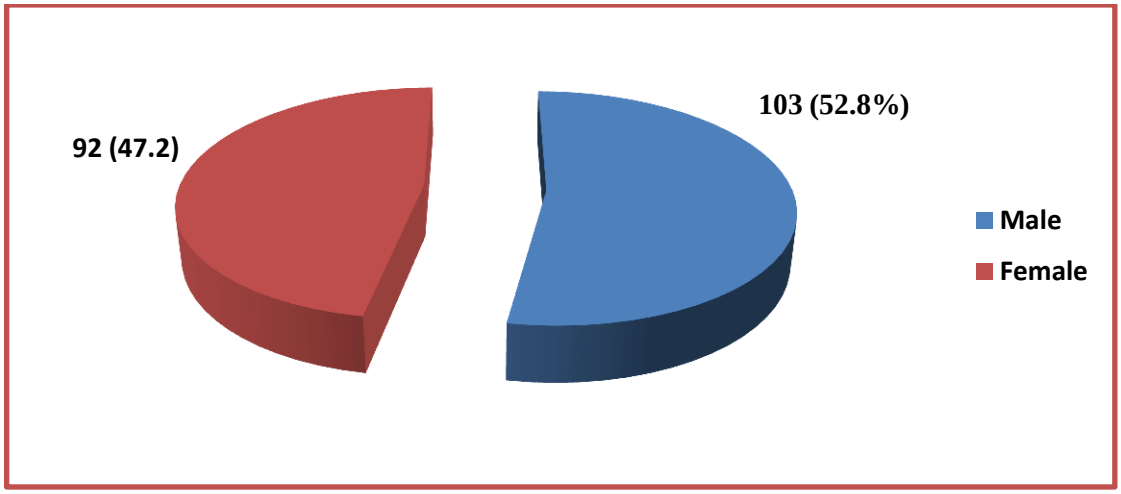

Figure (2): Distribution of neonates by gender

Figure (3) showed that 103 (52.8%) of neonates were males and 92 (47.2%) were females.

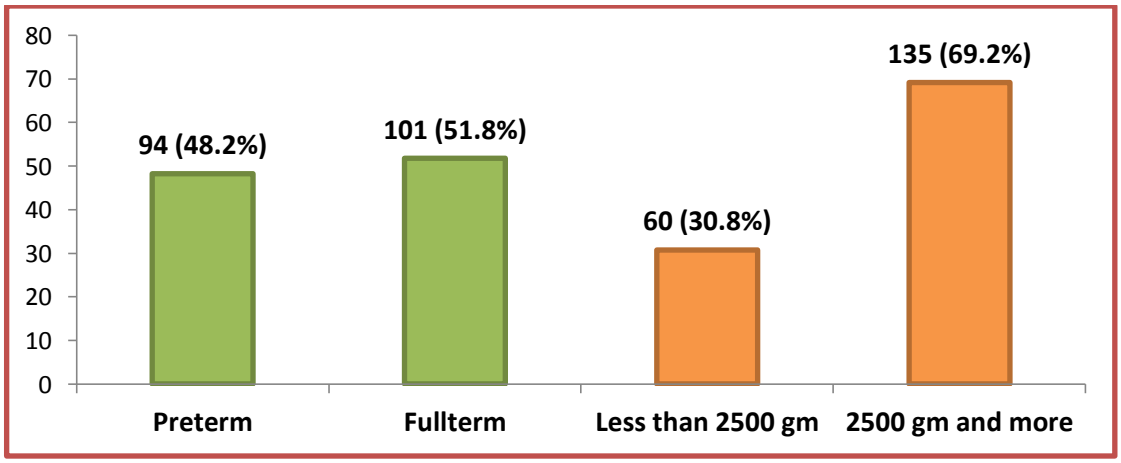

Figure (3): Distribution of neonates by gestational age and birth weight

Analysis of data on figure (4) indicated that the mean gestational age for neonates was 36.09 ±3.094 weeks and the mean birth weight was 2768.1 ±809.588 gm. As presented in figure (4.3) about half 94 (48.2%) of neonates were preterm (less than 37 weeks gestation) and 60 (30.8%) of neonates had LBW less than 2500 gm.

Table (4.2): Distribution of neonates by cause of admission and length of stay in NICU (N = 195)

Variable	**N**	**%**
Cause of admission to NICU		
Preterm birth	72	36.9
Respiratory distress	60	30.8
Jaundice	24	12.3
Septicemia	14	7.2
Congenital anomaly	14	7.2
Others	11	5.6
Number of admission days in NICU		
3 – 6 days	140	71.8
7 – 10 days	30	15.4
11 days and more	25	12.8

Table (4.2) showed that the highest cause of admission to NICU was prematurity and accounted for 72 (36.9%) of cases followed by respiratory distress 60 (30.8%), and jaundice 24 (12.3%). In addition, the majority of neonates 140 (71.8%) stayed in NICU for 3 – 6 days, while 25 (12.8%) stayed in NICU for 11 days and more from the day of data collection.

4.2 Analytical results

4.2.1 Anxiety scores among mothers

Table (4.3a): Frequency of anxiety symptoms among mothers

No.	Item	No		Yes	
		N	%	N	%
1	My sleep is fitful and disturbed.	49	25.1	146	74.9
2	I have had periods in which I lost sleep over worry.	28	14.4	167	85.6
3	I must admit that I have at times been worried beyond reason over something that really did not matter.	121	62.1	74	37.9
4	I believe I am no more nervous than most others.	82	42.1	113	57.9
5	I have nightmares every few nights.	95	48.7	100	51.3
6	I have a great deal of stomach trouble.	123	63.1	72	36.9
7	I frequently notice my hand shakes when I try to do something.	118	60.5	77	39.5
8	I have diarrhea once a month or more.	145	74.4	50	25.6
9	I worry over money and business.	78	40.0	117	60.0
10	I am troubled by attacks of nausea.	120	61.5	75	38.5
11	I am often afraid that I am going to blush.	76	39.0	119	61.0
12	I feel hungry almost all the time.	114	58.5	81	41.5
13	I am entirely self-confident.	38	19.5	157	80.5
14	I am troubled by attacks of nausea.	94	48.2	101	51.8
15	It makes me nervous to have to wait.	42	21.5	153	78.5
16	Sometimes I become so excited that I find it hard to get to sleep.	78	40.0	117	60.0
17	I am usually calm and not easily upset.	123	63.1	72	36.9
18	I have periods of such great restlessness that I cannot sit long in a chair.	46	23.6	149	76.4
19	I feel anxiety about something or someone almost all the time.	92	47.2	103	52.8
20	I find it hard to keep my mind on a task or job.	84	43.1	111	56.9
21	I feel anxiety about something or someone almost all the time.	47	24.1	148	75.9
22	I shrink from facing a crisis or difficulty.	43	22.1	152	77.9
23	I wish I could be as happy as others seem to be.	23	11.8	172	88.2
24	I frequently find myself worrying about something.	35	17.9	160	82.1
25	I certainly feel useless at times.	125	64.1	70	35.9

Table (4.3b): Frequency of anxiety symptoms among mothers (N = 195)

No.	Item	No		Yes	
		N	%	N	%
26	I sometimes feel that I am about to go to pieces.	88	45.1	107	54.9
27	My hands and feet are usually warm.	103	52.8	92	47.2
28	Life is a trial for me much of the time.	73	37.4	122	62.6
29	I worry quite a bit over possible misfortunes.	58	29.7	137	70.3
30	I am usually self-conscious.	55	28.2	140	71.8
31	I hardly ever notice my heart pounding and I am seldom short of breath.	115	59.0	80	41.0
32	I am usually calm and not easily upset.	29	14.9	166	85.1
33	I must admit that I have at times been worried beyond reason over something that really did not matter.	103	52.8	92	47.2
34	I am inclined to take things hard.	63	32.3	132	67.7
35	I have very few headaches.	78	40.0	117	60.0
36	I must admit that I have at times been worried beyond reason over something that really did not matter.	95	48.7	100	51.3
37	I cannot keep my mind on one thing.	74	37.9	121	62.1
38	I am easily embarrassed.	60	30.8	135	69.2
39	At times I think I am no good at all.	127	65.1	68	34.9
40	I am a high-strung person.	96	49.2	99	50.8
41	Sometimes when embarrassed, I break out in a sweat.	99	50.8	96	49.2
42	I blush more often than others.	89	45.6	106	54.4
43	I am more sensitive than most other people.	63	32.3	132	67.7
44	I practically never blush.	134	68.7	61	31.3
45	I have sometimes felt that difficulties were piling up so high that I could not overcome them.	45	23.1	150	76.9
46	I work under a great deal of tension.	109	55.9	86	44.1
47	My hands and feet are usually warm.	53	27.2	142	72.8
48	I dream frequently about things that are best kept to myself.	48	24.6	147	75.4
49	I am certainly lacking in self-confidence.	111	56.9	84	43.1
50	I am very seldom troubled by constipation.	88	45.1	107	54.9
Overall		**41.8**		**58.20**	

As shown in table (4.3a + b), the overall scores of anxiety among mothers was 58.2%. The highest scores obtained on the anxiety scale were as follows: 172 (88.2%) of mothers wish that they could be as happy as others seem to be, 166 (85.1%) of mothers said that they are

usually calm and not easily upset, 167 (85.6%) have had periods in which they lost sleep over worry, and 160 (82.1%) frequently find their-self worrying about something. These results reflected the main features of anxiety including worry, difficulty in sleeping, and feeling of unhappiness.

4.2.2 Depression scores among mothers

Table (4.4): Frequency of depression symptoms among mothers (N = 195)

No.	Symptom	0	1	2	3	4
		N (%)	N (%)	N (%)	N (%)	N (%)
1	Sadness	63(32.3)	67(34.4)	33(16.9)	13(6.7)	19(9.7)
2	Pessimism	80(41.0)	31(15.9)	26(13.3)	29(14.9)	29(14.9)
3	Past failure	116(59.5)	32(16.4)	29(14.9)	15(7.7)	3(1.5)
4	Loss of pleasure	49(25.1)	68(34.9)	35(17.9)	21(10.8)	22(11.3)
5	Guilty feelings	103(52.8)	20(10.3)	54(27.7)	8(4.1)	10(5.1)
6	Punishment feelings	92(47.2)	60(30.8)	28(14.4)	5(2.6)	10(5.1)
7	Self-dislike	134(68.7)	46(23.6)	7(3.6)	6(3.1)	2(1.0)
8	Self-criticism	63(32.3)	51(26.2)	58(29.7)	23(11.8)	0
9	Suicide thoughts or wishes	136(69.7)	42(21.5)	9(4.6)	3(1.5)	5(2.6)
10	Crying	63(32.3)	70(35.9)	38(19.5)	24(12.3)	0
11	Irritability	47(24.1)	92(47.2)	43(22.1)	13(6.7)	0
12	Loss of interest	93(47.7)	47(24.1)	40(20.5)	15(7.7)	0
13	Indecisiveness	77(39.5)	53(27.2)	49(25.1)	16(8.2)	0
14	Change in body image	106(54.4)	42(21.5)	43(22.1)	4(2.1)	0
15	Loss of energy	73(37.4)	46(23.6)	51(26.2)	19(9.7)	6(3.1)
16	Changes in sleeping pattern	42(21.5)	75(38.5)	30(15.4)	48(24.6)	0
17	Tiredness and fatigue	57(29.2)	79(40.5)	45(23.1)	14(7.2)	0
18	Changes in appetite	78(40.0)	73(37.4)	37(19.0)	7(3.6)	0
19	Loss of body weight	115(59.0)	52(26.7)	11(5.6)	17(8.7)	0
20	Loss of interest in sex	89(45.6)	62(31.8)	25(12.8)	19(9.7)	0
21	Worry about health	94(48.2)	52(26.7)	29(14.9)	20(10.3)	0

Table (4.4) indicated variations in frequency and degree of depression scores, that the highest scores were in pessimism as 84 (43.1%) of mothers were pessimistic about the future, followed by self-criticism as 81 (41.5%) of mothers blame themselves for any fault, and loss of pleasure as 78 (40%) of mothers were dissatisfied or bored with many things in their life, while the lowest score was in suicidal thoughts or wishes as 17 (8.7%) of mothers have thoughts of suicide and 8 (4.1%) of mothers plans to attempt suicide.

Table (4.5): Levels of anxiety and depression among mothers (N = 195)

Variable	**Score**	**Al Shifa**	**Al Tahreer**	**EGH**	**Total**
		N (%)	**N (%)**	**N (%)**	**N (%)**
Anxiety symptoms					
Very mild	0 – 16	7 (3.7)	2 (1.0)	3 (1.5)	**12 (6.2)**
Mild	17 - 19	5 (2.6)	2 (1.0)	1 (0.5)	**8 (4.1)**
Moderate	20 - 24	16 (8.2)	9 (4.6)	2 (1.0)	**27 (13.8)**
Above moderate	25 - 29	25 (12.8)	19 (9.7)	5 (2.6)	**49 (25.1)**
Severe	30 - 34	18 (9.2)	20 (10.3)	15 (7.7)	**53 (27.2)**
Very severe	35 - 50	19 (9.7)	23 (11.8)	4 (2.1)	**46 (23.6)**
Depression symptoms					
No	0 - 9	25 (12.8)	8 (4.1)	4 (2.1)	**37 (19.0)**
Mild	10 - 15	16 (8.1)	15 (7.7)	4 (2.1)	**35 (17.9)**
Moderate	16 - 23	21 (10.8)	21 (10.8)	6 (3.0)	**48 (24.6)**
Severe	24 - 36	23 (11.8)	17 (8.8)	11 (5.6)	**51 (26.2)**
Very severe	37 and more	5 (2.6)	14 (7.1)	5 (2.6)	**24 (12.3)**

Table (4.5) showed that all the mothers have symptoms of anxiety with variation in severity of these symptoms. The results reflected that 12 (6.2%) of mothers had very mild

anxiety, and 8 (4.1%) had mild anxiety, while 53 (27.2%) of mothers had severe anxiety and 46 (23.6%) had very severe anxiety, and mothers from Al Tahreer hospital in Khanyounis as 43 (22.1%) have severe to very severe anxiety, while the lowest frequency was among mothers from EGH as 19 (9.8%) of mothers had severe to very severe anxiety.

Also, the results showed that 37 (19%) of mothers did not have symptoms of depression, while 158 (81%) have symptoms of depression with variation in severity of symptoms. The results indicated that 51 (26.2%) of mothers had severe symptoms of depression and 24 (12.3%) had very severe symptoms, and the highest level of depression was among mothers from Al Tahreer hospital.

4.2.3 Relationship between anxiety and depression

Table (4.6): Relationship between anxiety and depression (Pearson Correlation test)

		Depression
Anxiety	r	0.377
	Sig.	0.000 **

**= significant at 0.01 r= correlation value

Table (4.6) showed that there was statistically significant mild positive relationship between anxiety and depression among mothers of NICU babies.

4.2.4 Differences in anxiety and depression related to mothers' factors

Table (4.7a): Differences in anxiety and depression related to hospital (N = 195)

Variable	**Hospital**	**N**	**Mean**	**SD**	**F**	**P value**
Anxiety	Al Shifa	90	27.96	7.83	3.177	0.044 *
	Al Tahreer	75	30.85	7.65		
	EGH	30	28.13	7.18		
Depression	Al Shifa	90	17.68	11.49	5.524	0.005 *
	Al Tahreer	75	23.25	12.33		
	EGH	30	23.63	11.96		

*significant at 0.05 (One way ANOVA test)

Table (4.7b): Post hoc Scheffe test (for hospital)

Variable	Hospital	Mean difference	P value
Anxiety	(Al Tahreer) – (Al Shifa)	2.886	0.058
	(Al Tahreer) – (EGH)	2.720	0.263
Depression	(Al Tahreer) – (Al Shifa)	5.564	0.013 *
	(Al Tahreer) – (EGH)	0.380	0.989

* Statistically significant at 0.05

Table (4.7a) indicated that there were statistically significant differences in levels of anxiety (F= 3.177, P= 0.044) and levels of depression (F= 5.524, P= 0.005) among mothers related to hospital. To identify these differences, Post hoc Scheffe test was performed (table 4.7b) and the results reflected that there were no significant differences in the anxiety scores between A Tahreer and Al Shifa hospital and EGH, while the depression scores was higher among mothers whom their neonates admitted to NICU at Al Tahreer hospital.

Table (4.8a): Differences in anxiety and depression related to age of mother (N = 195)

Variable	Age	N	Mean	SD	F	P value
Anxiety	< 25 years	66	27.69	8.29	1.972	0.142
	25 – 34 years	93	29.48	7.22		
	≥ 35 years	36	30.69	7.86		
Depression	< 25 years	66	18.42	11.65	3.613	0.029 *
	25 – 34 years	93	20.69	11.68		
	≥ 35 years	36	25.11	13.41		

*significant at 0.05 (One way ANOVA test)

Table (4.8b): Post hoc Scheffe test (for age)

Variable	Age of mother	Mean difference	P value
Depression	(≥35) – < 25)	6.686	0.029 *
	(≥35) – (25 - 34)	4.412	0.176

* Statistically significant at 0.05

Table (4.8a) showed that there was no statistical significant difference in level of anxiety related to the age of mothers (F= 1.972, P= 0.142), but differences in levels of depression were statistically significant (F= 3.61, P= 0.029). To identify these differences, Post hoc Scheffe test was performed (table 4.8b) and the results reflected that mothers aged 35 years and more had higher level of depression compared to mothers aged 24 years and less, whereas there was no significant difference between mothers aged 25 – 34 years and mothers aged 35 years and more.

Table (4.9): Differences in anxiety and depression related to number of deliveries

(N = 195)

Variable	Number of deliveries	N	Mean	SD	F	P value
Anxiety	One delivery	48	28.41	6.87	1.642	0.196
	2 – 4 deliveries	86	28.43	8.19		
	≥ 5 deliveries	61	30.59	7.69		
Depression	One delivery	48	17.27	11.98	2.953	0.055
	2 – 4 deliveries	86	21.22	12.51		
	≥ 5 deliveries	61	22.80	11.40		

(One way ANOVA test)

Table (4.9) showed that there were statistically no significant differences in level of anxiety (F= 1.642, P= 0.196) and level of depression (F= 2.953, P= 0.055) among mothers related to the number of deliveries.

Table (4.10): Differences in anxiety and depression levels related to mode of delivery (N = 195)

Variable	Mode of delivery	N	Mean	SD	t	P value
Anxiety	NVD	124	28.500	7.597	1.437	0.152
	CS	71	30.154	7.979		
Depression	NVD	124	19.709	11.918	1.574	0.117
	CS	71	22.549	12.471		

(t) test

Table (4.10) indicated that there were statistically no significant differences in level of anxiety (t= 1.437, P= 0.152) and level of depression (t= 1.574, P= 0.117) among the mothers related to the mode of delivery.

Table (4.11): Differences in anxiety and depression related to level of education

(N = 195)

Variable	Level of education	N	Mean	SD	F	P value
Anxiety	Prep school	29	28.27	8.25	1.688	0.188
	Secondary school	90	30.20	7.74		
	University	76	28.11	7.50		
Depression	Prep school	29	21.27	11.21	0.961	0.384
	Secondary school	90	21.83	12.40		
	University	76	19.25	12.23		

(One way ANOVA test)

Table (4.11) indicated that there were statistically no significant differences in level of anxiety (F= 1.688, P= 0.188) and level of depression (F= 0.961, P= 0.384) among the mothers related to the level of education.

Table (4.12): Differences in anxiety and depression levels related to work (N = 195)

Variable	Work	N	Mean	SD	t	P value
Anxiety	Working	19	28.631	8.159	0.278	0.781
	Not working	176	29.153	7.737		
Depression	Working	19	18.105	12.050	0.995	0.321
	Not working	176	21.028	12.180		

(t) test

Table 4.12 indicated that there were statistically insignificant differences in level of anxiety (t= 0.278, P= 0.781) and level of depression (t= 0.995, P= 0.321) among mothers related to work.

Table (4.13): Differences in anxiety and depression levels related to income (N = 195)

Variable	Income	N	Mean	SD	t	P value
Anxiety	<1000 NIS	166	29.355	7.874	1.089	0.277
	≥1000 NIS	29	27.655	7.016		
Depression	<1000 NIS	166	20.969	12.303	0.620	0.536
	≥1000 NIS	29	19.448	11.478		

(t) test

Table (4.13) indicated that there were statistically no significant differences in level of anxiety (t= 1.089, P= 0.277) and level of depression (t= 0.620, P= 0.536) among mothers related to monthly income.

4.2.5 Differences in anxiety and depression related to neonatal factors

Table (4.14): Differences in anxiety and depression levels related to gender (N = 195)

Variable	Gender	N	Mean	SD	t	P value
Anxiety	Male	103	29.019	8.338	0.158	0.875
	Female	92	29.195	7.099		
Depression	Male	103	20.932	12.855	0.228	0.820
	Female	92	20.532	11.415		

(t) test

Table (4.14) indicated that there were statistically no significant differences in level of anxiety (t= 0.158, P= 0.875) and level of depression (t= 0.228, P= 0.820) among mothers related to the gender of neonate.

Table (4.15): Differences in anxiety and depression levels related to gestational age (N = 195)

Variable	Gestational age	N	Mean	SD	t	P value
Anxiety	<37 weeks	94	30.574	7.097	2.593	0.010 *
	≥37 weeks	101	27.732	8.125		
Depression	<37 weeks	94	21.670	11.896	1.026	0.306
	≥37 weeks	101	19.881	12.411		

*significant at 0.05 (t) test

Table (4.15) indicated that there were statistically significant differences in level of anxiety related to gestational age (t= 2.593, P= 0.010) which means that the mothers of preterm babies had higher level of anxiety compared to the mothers of full-term babies, but there were statistically no significant differences in level of depression (t= 1.026, P= 0.306).

Table (4.16): Differences in anxiety and depression levels related to birth weight

(N = 195)

Variable	Birth weight	N	Mean	SD	t	P value
Anxiety	<2500 g	60	30.950	7.279	2.239	0.026 *
	≥2500 g	135	28.281	7.849		
Depression	<2500 g	60	21.600	12.231	0.654	0.514
	≥2500 g	135	20.363	12.165		

*significant at 0.05 (t) test

Table (4.16) indicated that there were statistically significant differences in level of anxiety related to birth weight (t= 2.239, P= 0.026) which means that the mothers of LBW babies had higher level of anxiety compared to the mothers of normal weight babies, but there were insignificant differences in levels of depression (t= 0.654, P= 0.514).

Table (4.17): Differences in anxiety and depression related to cause of admission to NICU (N = 195)

Variable	Cause of admission	N	Mean	SD	F	P value
Anxiety	Preterm birth	72	30.69	7.41	1.803	0.114
	Respiratory distress	14	30.35	6.64		
	Jaundice	60	28.55	8.39		
	Septicemia	24	27.08	8.41		
	Congenital anomaly	14	28.92	4.82		
	Others	11	24.72	7.61		
Depression	Preterm birth	72	21.01	12.22	0.881	0.495
	Respiratory distress	14	22.64	12.08		
	Jaundice	60	19.10	11.89		
	Septicemia	24	19.54	10.25		
	Congenital anomaly	14	26.07	12.40		
	Others	11	21.36	16.70		

(One way ANOVA test)

Table (4.17) indicated that there was no statistical significant difference in level of anxiety (F= 1.684, P= 0.140) and level of depression (F= 0.764, P= 0.577) among the mothers related to the cause of admission to NICU.

Table (4.18): Differences in anxiety and depression related to days of stay in NICU (N = 195)

Variable	Days of stay in NICU	N	Mean	SD	F	P value
Anxiety	3 – 6 days	140	28.86	7.79	0.382	0.683
	7 – 10 days	30	30.23	9.04		
	11 days and more	25	29.08	5.81		
Depression	3 – 6 days	140	20.55	11.90	0.282	0.754
	7 – 10 days	30	22.23	13.39		
	11 days and more	25	20.04	12.47		

(One way ANOVA test)

Table (4.18) indicated that there were statistically no significant differences in level of anxiety (F= 0.382, P= 0.683) and level of depression (F= 0.282, P= 0.754) among the mothers related to the number of admission days to NICU.

4.3 Discussion

The stress induced by admission of an infant to NICU and separation from his mother could have negative impact on mental health and wellbeing of the mother. This study aimed to examine the prevalence rate of anxiety and depression among the mothers of sick newborns admitted to NICU in GS.

The sample of the study consisted of 195 mothers whose neonates admitted to NICU with mean age 28.22±5.954 years, about one-fourth of them were primiparous, two-thirds of them had NVD, more than one-third had university education, the vast majority were not working, and had low family income less than 1000 NIS. Also, slightly more than half of neonates were males, less than half were preterm, and one-third had LBW less than 2500 gm.

In India, Ashwani et al. (2017) found that mean age of the participants of their study was lower than our results (m= 23.9±3.2) years, and one-fourth had university education, more than half of neonates were the first child, more than half were boys, their mean BW was 2093±755 g, mean gestational age was 34.58±3.6 weeks which is lower than our results. Our results indicated that the main causes of admission were prematurity and respiratory distress while Ashwani et al. (2017) reported that the main causes of admission to NICU were sepsis, followed by prematurity, and respiratory distress syndrome. Also, inconsistent results were found by Umasankar and Sathiadas (2016) which showed that half of mothers were primiparous, more than half aged 30 – 39 years, half of mothers had NVD, more than

two-thirds of neonates were premature, more than half of them had low birth weight, one third had respiratory problems, and mean stay in NICU was 10 days which is higher than our results which showed that more than two-thirds of neonates stayed in NICU for 3 – 6 days. In addition, Ramos et al., (2017) found that mean age of mothers was 27.12±8.25 years which is similar to our results, less than half of mothers completed high school, half of mothers were not working, more than half of mothers were primiparous which is higher than our results, 44.0% had NVD which is inconsistent with our results, 12.0% were preterm, low birth weight, mean gestational age was 32.64±3.94 weeks, mean birth weight was 1595±725 g, and mean days of hospitalization to NICU was 44±29 days which is higher than our results. Also, inconsistent results found by Hedstrom et al., (2014) which indicated that the most common causes of admission to NICU were infection, followed by prematurity, respiratory distress and asphyxia.

4.3.1 Levels of anxiety and depression among mothers

Exposure to stressful events may lead to the development of emotional and mental symptoms, and among the most prevailing manifestations are anxiety and depression, and that hospitalization of babies to the NICU is a stressful event particularly for the mothers (Busse et al., 2013; Yaman and Altay, 2015).

The results of our study indicated that half of mothers have severe to very severe symptoms of anxiety, that more than one-third of mothers have severe to very severe symptoms of depression. In addition, our results revealed positive relationship between anxiety and depression.

The stress of having a newborn hospitalized in the NICU raises a mother's risk for significant depressive symptoms, and some studies reported that between 28.0% and 67.0% of NICU mothers reported elevated levels of depressive symptoms (Davis et al. 2003; Miles et al. 2007; Pinelli et al. 2008; Lefkowitz et al. 2010).

In addition, parents of NICU babies often suffer from feelings of stress, depression and anxiety, and mothers may feel guilt, responsibility, failure, and shame about their infant's hospitalization (Obeidat et al. 2009). Moreover, Jubinville et al. (2012) reported that the mothers of newborn infants who are hospitalized in the NICU exhibit high rates of emotional states, including significant symptoms of depression and anxiety disorders.

Our results were consistent with Miles et al. (2007) who found that two-thirds of NICU mothers had elevated depression symptoms when the infant was hospitalized. Also, prevalence of anxiety symptoms among NICU mothers ranges from 18.0% to 43.0% (Carter et al. 2005; Rogers et al. 2013). Furthermore, Segre et al. (2014) found that one-quarter of the NICU mothers reported elevated depression symptoms, and moderate to severe anxiety symptoms, while in USA, Alkozei et al. (2014) reported that 52.0% of the mothers experienced increased stress and 38.0% had significant depressive symptoms, and Garfield et al. (2015) found that 42.0% of NICU mothers had elevated depression. Another study carried out by Padovani et al. (2004) found that 44% of mothers showed emotional symptoms such as anxiety and depression during their infants' admission to NICU, and Davis et al. (2009) reported that about half of the mothers of premature infants have elevated levels of anxiety symptoms during hospitalization to NICU.

Higher levels of depression symptoms found by Miles et al. (2007) who reported that 63.0% of NICU mothers had elevated depression symptoms early when the infant was hospitalized.

Moreover, in United States of America (USA), Segre et al., (2014) found lower results and that 25.5 % of NICU mothers reported clinically significant symptoms of depression, 17.4% of mothers had moderate anxiety symptoms and 10.3% of mothers had severe anxiety symptoms.

Therefore, different factors may contribute to variation in results. It is important to say that having sick premature baby admitted to NICU is a stressful event that will evoke disturbance in emotional wellbeing for the entire family and specifically for the mother and that could be related to cultural beliefs and stigma. In our culture, the woman is the weak partner and usually the mother will be blamed for health problems that may encounter after delivery as delivering a premature baby or delivering sick baby. This situation puts the mother in a hard position in front of her husband and his family and that may affect her marital status and her future life with her husband. The mother became afraid that her husband may marry another woman or even divorce her, and that will provoke extra stress on the mother and increase her anxiety and depression. In addition, the NICU environment and infrastructure in GS is not well-suited for the mothers; there is no special room for the mothers to set in especially for counseling with nurses and physicians, also, there is no privacy when the mother allowed to breastfeed her baby and she will be exposed to nurses and physicians because she will breastfeed her baby while she is setting on chair beside the incubator. These cultural beliefs and environmental conditions attributed to the presence of higher levels of anxiety and depression among mothers in GS compared to other places like western countries where adequate place is designed for the mothers and they can be with their babies longer time without strict visiting times.

4.3.2 Differences in levels of anxiety and depression related to mothers' factors

Different mothers' and demographic factors are affecting levels of anxiety and depression to a considerable extent. The results of this study indicated that the highest symptoms of anxiety and depression were among mothers from Al Tahreer hospital. This result is explained in the context that NICU in Al Tahreer hospital is more crowded and busy compared to the other NICUs as it consists of 15 incubators with average admissions of 152 babies per month, while the NICU in EGH consists of 12 incubators with average

admissions of 52 babies per month and the NICU in Al Shifa hospital consists of 43 incubators with average admissions of 185 babies per month, and that increase work load and decrease the chance that mothers can set with their babies also decrease the chance of mothers being able to communicate with nurses and physicians about their babies' health condition and that may lead to increase the level of anxiety and depression among mothers.

Moreover, the results indicated no significant differences in levels of anxiety related to age of the mothers but mothers aged 35 years and more had higher level of depression. Also, there were no significant differences in levels of anxiety and depression related to number of deliveries, mode of delivery, level of education, wok, and family income.

Consistent results were obtained in a study carried out in USA by Alkozei et al. (2014) which found that demographic factors and pregnancy related factors were not related to increased stress and thus did not affect levels of anxiety and depression. Also, the results obtained by Erdem (2010) indicated that maternal age, education, income, planned pregnancy, type of labour, and having complications of pregnancy did not affect maternal anxiety levels. Another study carried out by Mizrak et al. (2015) found that there was insignificant differences in anxiety levels of mothers related to socio-demographic characteristics such as age, educational status, occupation and income. In addition, Yurdakul et al. (2009) reported that maternal age, working status, education level, parity, and gender of the baby did not contribute to higher levels of maternal anxiety and depression, while Carter et al. (2005) reported that lower family income was associated with higher levels of anxiety and depression symptoms in NICU mothers.

The above results indicated consistency between our results and the results obtained in previous studies. The researcher thinks that similarity of results could be attributed to the fact that having a sick newborn admitted to NICU is a stressful event for the mother that contribute to elevation of her emotional distress and increase her anxiety and depression

regardless to other sociodemographic conditions. The mother is emotional in nature, and being separated from her baby and lose bonding adds extra stress on her. In addition, admission to NICU and uncertainty about prognosis and outcome increase the mother's anxiety and depression regardless of her age, education level or income.

4.3.3 Differences in levels of anxiety and depression related to neonatal factors

Experience of anxiety and depression is related to different neonatal factors such as gestational age, birth weight, and severity of health problems. Our results reflected that the mothers of preterm and low birth weight babies had higher level of anxiety, but there were no significant differences in level of depression. In addition, our results indicated no significant differences in level of anxiety and depression among the mothers related to gender of neonate, cause of admission, and length of stay in NICU.

Comparing our results with previous studies showed variations in results as some studies showed consistent results with our results and other studies showed inconsistent results with our results.

Our results were consistent with the results of Grosik et al. (2013) which showed that mothers' experience of stress is influenced by some factors including, birth variables, and immaturity. Erdem (2010) found that gestational age, reasons for hospitalization of the infant and birth weight did not affect maternal anxiety levels which was consistent with our results. Furthermore, Mizrak et al. (2015) found that there was no significant relationship between gender of the baby, duration of hospitalization and anxiety and depression levels, and Carter et al. (2005) reported that infant prematurity was related to higher levels of anxiety and depression symptoms in NICU mothers which is consistent with our results. Moreover, Yurdakul et al. (2009) reported that gender of the baby did not contribute to higher levels of maternal anxiety and depression, and Umasankar and Sathiadas (2016) found that neonatal gestational age was related to high stress levels in mothers.

Other results were not consistent with our results. In this regard, Mizrak et al. (2015) found that changes in anxiety and depression levels among mothers were not related to neonatal birth weight, and Erdem (2010) found that maternal anxiety was significantly related to duration of hospitalization and anxiety was higher if their infant was a boy, while Umasankar and Sathiadas (2016) found that high stress level among the mothers was related to neonatal birth asphyxia and sepsis.

It is worth to say that our results reflected that the main two factors that contributed to elevation of anxiety and depression were prematurity and low birth weight, while the other factors did not make significant differences. Most of previous studies revealed similar results with our results. The researcher believes that delivering premature baby with low birth weight were the major causes of admission to NICU, while the other factors were less important, thus these two factors contributed to the differences in levels of anxiety and depression. Also, admission to the NICU regardless of gender or cause of admission contributed to presence of anxiety and depression but were not serious enough to cause significant differences between the mothers, which means that all the mothers regardless of gender or cause of admission have a considerable similar levels of anxiety and depression caused by having their baby admitted in NICU.

Chapter Five

5.1 Conclusion

The transition to motherhood is a complex challenge, and having a newborn baby with health problems can be even more complex and difficult. The hospitalization of newborns to NICU is a major stressful event for family members especially for the mother. It is a turning point in the emotional, personal, and social life for many mothers which will result in subsequent changes in the way they view themselves, their relationships with husbands, and their place in the family. This study examined the prevalence and level of anxiety and depression among the mothers whose babies admitted to NICU, and to determine the differences in the levels of anxiety and depression in relation to selected variables.

The results of the study indicated presence of anxiety and depression symptoms to a considerable degree, and that could be reflected in their behavior and their ability to carry out the role of mother due to separation from her newborn.

The effect of different maternal and neonatal factors on level of anxiety and depression were examined and most of them revealed no significant differences, which means that admission to NICU as a stressful event caused an elevation in levels of anxiety and depression among mothers regardless of any other factors.

In conclusion, the researcher believed that stress and pressure imposed on mothers as a result of the sickness and hospitalization of their newborn created psychological disturbances that may affect their mental well-being. Mothers need psychosocial support during this period in order to ensure the mothers' emotional balance and decrease negative emotions that can lead to poor health outcomes.

The results obtained from this study raised the need for attention and support for the mothers whose babies are admitted and treated in NICU, as these mothers are in need for

psychological support to enable them pass this difficult situation with the best possible psychological status.

5.2 Recommendations

In the light of the study results, the researcher recommends the following:

- Integrate mental health services in general hospitals to support mothers and help them cope with the stress caused by hospitalization of their newborn.
- Follow up the psychological status of mothers of NICU babies after discharge from the hospital and monitor their return to normal life.
- Mothers with severe symptoms of anxiety and depression should be identified and referred to specialized psychiatric clinics for appropriate treatment.
- The need to train the nurses and physicians who are working in NICU on mental health and strategies to help mothers cope with the sickness of their newborn and improve their mental well-being.
- Emphasize the role of physicians and nurses to communicate with mothers and fulfill their role to educate, assure, and comfort mothers.

5.3 Suggestions for further research

- Carry out a study aiming to examine the levels of anxiety and depression among NICU mothers after 2 – 3 months.
- Carry out a study aiming to examine the levels of anxiety and depression among parents on neonates admitted to NICU.
- Conduct a study aiming to determine the mothers satisfaction from the health care offered to neonates in NICU in Gaza Strip.
- Conduct a study aiming to identify the quality of life among mothers whose babies were admitted to NICU in Gaza Strip.

- Carry out a study aiming to evaluate the benefits of psychological counseling in decreasing mental health disturbances among mothers of NICU babies.
- To study the effects of hospitalization in NICU on mother-child bonding and the effects on neonatal development.
- Carry out case-control study related to the topic in order to control of postpartum emotional liability as depression.

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Annexes

Annex (1): Map of Historical Palestine

Annex (2): Distribution of study population and sample

Hospital	Admissions during 2017	Average admissions per month	Sample proportion
Al Shifa	2222	185	90
Al Tahreer	1823	152	75
EGH	620	52	30
Total	4665	389	195

Annex (3): Consent form

بسم الله الرحمن الرحيم

عنوان الدراسة: مدى انتشار القلق والاكتئاب لدى أمهات الأطفال حديثي الولادة المنومين في أقسام الحضانة في المستشفيات الحكومية بمحافظات غزة.

Prevalence of Anxiety and Depression among Mothers of Newborns Admitted to Neonatal Intensive Care Units in Gaza Strip

السيدة الفاضلة:

السلام عليكم ورحمة الله وبركاته

أتمنى لك ولطفلك السلامة والصحة ،،،

بين أيديكم استبانة خاصة برسالة الماجستير التي أقوم بإجرائها وهي تهدف إلى التعرف على الحالة النفسية (القلق والاكتئاب) التي تمرين بها بسبب مرض طفلك ودخوله قسم الحضانة للعلاج.

يرجى الاستجابة على جميع فقرات الاستبانات بشكل صادق، مع العلم أنه لا توجد إجابات خاطئة ولكن إجابتك تعبر عن رأيك الشخصي، كما أن المعلومات التي سيتم جمعها سوف تستخدم لأغراض البحث العلمي فقط، ونلفت انتباهك بأن كتابة اسمك الشخصي اختياري وغير ملزم.

إقرار موافقة على المشاركة في الدراسة: ..... التوقيع

الباحثة

رانيه جمال بريكة

Annex (4): Taylor Manifest Anxiety Scale (Arabic version)

أولاً: البيانات الشخصية

المستشفى: .....

خاص بالأم

العمر: ..... **سنة**

عدد الولادات: .....

نوع الولادة: □ طبيعي □ قيصري

المستوى التعليمي: □ ابتدائي □ إعدادي □ ثانوي □ جامعي

العمل: □ تعمل □ لا تعمل

الدخل الشهري بالشيكل: ..... شيكل

خاص بالطفل

الجنس: □ ذكر □ أنثى

مدة الحمل: ..... أسبوع

الوزن عند الولادة: ..... جرام

سبب دخول القسم: □ أقل من 37 أسبوع □ التهابات حادة في الدم □ مشاكل في التنفس □ يرقان

عدد أيام المكوث في □ 3 – 6 أيام □ 7 – 10 □ 11 يوم فأكثر

مقياس القلق لتايلور

ضعي علامة (x) مقابل كل عبارة مما يلي:

الرقم	العبـــارة	نعم	لا
1	نومي مضطرب و متقطع		
2	مرت بي أوقات افتقدت فيها النوم بسبب القلق		
3	لدى قليل جداً من المخاوف إذا قورنت بأصدقائي		
4	أعتقد أنني لست أكثر عصبية من معظم الناس		
5	تنتابني أحلام مزعجة (أو كوابيس) من حين لآخر		
6	عندي قدر كبير من المتاعب في معدتي		
7	غالباً ما ألاحظ أن يداي ترتجفان عندما أحاول القيام بعمل من الأعمال		
8	أعانى من نوبات الإسهال		
9	المال والعمل يثيران القلق عندي		
10	أصاب أحياناً بنوبات من الغثيان (غميان النفس)		
11	كثيراً ما أخشى أن يحمر وجهي خجلاً		
12	أشعر بجوع في كل الأوقات تقريباً		
13	أنني أثق بنفسي تماماً		
14	لا أ تعب بسرعة		
15	إن الانتظار يجعلني عصبياً		
16	أشعر أحيانا بالإثارة لدرجة أن النوم يتعذر علىّ		
17	أشعر دائماً بالهدوء		
18	تمر بي فترات من عدم الاستقرار لدرجة أنني لا أستطيع أن أمكث طويلاً في مقعدي		
19	أنني سعيدة في معظم الوقت		
20	أجد من الصعب علىّ تركيز ذهني في عمل ما		
21	أشعر بالقلق على شيء ما وشخص ما طول الوقت تقريباً		
22	أخاف من مواجهة أزمة أو شدة		
23	أود أن أصبح سعيدة كما يبدو الآخرين		
24	كثيراً ما أجد نفسي قلقه على شيء ما		
25	من المؤكد أنني أشعر أحياناً بأن لا فائدة لي		
26	أشعر أحياناً بأنني أكاد أتمزق ارباً		
27	أعرق بسهولة حتى في الأيام الباردة		

28	الحياة عسيرة بالنسبة لي في أغلب الأوقات		
29	يقلقني ما يحتمل أن أواجهه من حظ سيئ		
30	أنني حساسة بنفسي لدرجة غير عادية		
31	لا أظن أنني لاحظت أبداً أن قلبي يخفق بشدة ويندر أن تنهج أنفاسي		
32	أ بكى بسهولة		
33	لقد خشيت أشياء أو أشخاص أعرف أنهم لا يستطيعون إيذائي		
34	عندي استعداد لان تؤثر في أحداث الحياة تأثيرا شديداً		
35	قلّما أصاب بالصداع		
36	لا بد أن أعترف بأنني شعرت أحياناً بالقلق الشديد على أشياء لا قيمة لها		
37	لا أستطيع أن أركز تفكيري في شيء واحد		
38	أنا أ رتبك بسهولة		
39	في بعض الأحيان أعتقد أنني لا أصلح لشيء أبداً		
40	أنني شخصية متوترة جداً		
41	أحياناً عندما أتضايق يتساقط منى العرق بصورة تضايقني جداً		
42	وجهي يحمر خجلاً بدرجة أكثر مما يحدث للآخرين		
43	أنا أكثر حساسية من غالبية الناس		
44	لا يكاد وجهي يحمر من الخجل أبداً		
45	مرت بي أوقات كنت أشعر خلالها بأن الصعاب تتراكم فوق بعضها البعض بحيث لا		
46	عندما أقوم بعملي أكون في حالة توتر شديد		
47	يداي وقدماي دافئتان في العادة		
48	أحلم كثيراً بأمور أفضل الاحتفاظ بها لنفسي		
49	تنقصني الثقة بالنفس		
50	يندر جداً أن أصاب بالإمساك		

Annex (5): Taylor Manifest Anxiety Scale (English version)

Please mark (x) against each item in the proper column

No.	Item	Yes	No
1	My sleep is fitful and disturbed.		
2	I have had periods in which I lost sleep over worry.		
3	I must admit that I have at times been worried beyond reason over something that really did not matter.		
4	I believe I am no more nervous than most others.		
5	I have nightmares every few nights.		
6	I have a great deal of stomach trouble.		
7	I frequently notice my hand shakes when I try to do something.		
8	I have diarrhea once a month or more.		
9	I worry over money and business.		
10	I am troubled by attacks of nausea.		
11	I am often afraid that I am going to blush.		
12	I feel hungry almost all the time.		
13	I am entirely self-confident.		
14	I am troubled by attacks of nausea.		
15	It makes me nervous to have to wait.		
16	Sometimes I become so excited that I find it hard to get to sleep.		
17	I am usually calm and not easily upset.		
18	I have periods of such great restlessness that I cannot sit long in a chair.		
19	I feel anxiety about something or someone almost all the time.		
20	I find it hard to keep my mind on a task or job.		
21	I feel anxiety about something or someone almost all the time.		
22	I shrink from facing a crisis or difficulty.		
23	I wish I could be as happy as others seem to be.		
24	I frequently find myself worrying about something.		
25	I certainly feel useless at times.		
26	I sometimes feel that I am about to go to pieces.		
27	My hands and feet are usually warm.		

28	Life is a trial for me much of the time.		
29	I worry quite a bit over possible misfortunes.		
30	I am usually self-conscious.		
31	I hardly ever notice my heart pounding and I am seldom short of breath.		
32	I am usually calm and not easily upset.		
33	I must admit that I have at times been worried beyond reason over something that really did not matter.		
34	I am inclined to take things hard.		
35	I have very few headaches.		
36	I must admit that I have at times been worried beyond reason over something that really did not matter.		
37	I cannot keep my mind on one thing.		
38	I am easily embarrassed.		
39	At times I think I am no good at all.		
40	I am a high-strung person.		
41	Sometimes when embarrassed, I break out in a sweat.		
42	I blush more often than others.		
43	I am more sensitive than most other people.		
44	I practically never blush.		
45	I have sometimes felt that difficulties were piling up so high that I could not overcome them.		
46	I work under a great deal of tension.		
47	My hands and feet are usually warm.		
48	I dream frequently about things that are best kept to myself.		
49	I am certainly lacking in self-confidence.		
50	I am very seldom troubled by constipation.		

Annex (6): Aaron Beck Depression Inventory (Arabic version)

مقياس أرون بيك للاكتئاب

يرجى قراءة كل عبارة من كل مجموعة وأن تضعي دائرة حول رقم العبارة التي تنطبق عليك.

1- الحزن	0	لا أشعر بالحزن
	1	أشعر بالحزن والكآبة
	2	الحزن والانقباض يسيطران علي طوال الوقت، واعجز عن الفكاك منهما
	3	أشعر بالحزن والتعاسة لدرجة مؤلمة
	4	أشعر بالحزن والتعاسة لدرجة لا تحتمل
2- التشاؤم من المستقبل	0	لا أشعر بالقلق أو التشاؤم من المستقبل
	1	أشعر بالتشاؤم من المستقبل
	2	لا يوجد ما أتطلع إليه في المستقبل
	3	لا أستطيع أبداً أن أتخلص من متاعبي
	4	أشعر باليأس من المستقبل، وأن الأمور لن تتحسن
3- الإحساس بالفشل	0	لا أشعر بأني فاشلة
	1	أشعر أن نصيبي من الفشل أكثر من الناس العاديين
	2	أشعر أنني لم أحقق شيئاً له معنى أو أهمية
	3	عندما أنظر إلى حياتي في السابق أجدها مليئة بالفشل
	4	أشعر أنني إنسانة فاشلة تماماً
4- السخط وعدم الرضا	0	لست ساخطةً
	1	أشعر بالملل أغلب الوقت
	2	لا أستمتع بالأشياء كما كنت من قبل
	3	لم أعد أجد شيئاً يحقق لي المتعة (أو الرضا)
	4	إنني غير راضيه وأشعر بالملل من أي شيء
5- الإحساس بالندم أو الذنب	0	لا يصيبني إحساس خاص بالندم أو الذنب على شيء
	1	أشعر بالندم بعض الأوقات

	2	يصيبني إحساس بالندم أو الذنب معظم الأوقات.
	3	يصيبني إحساس بالندم أو الذنب كل الأوقات.
	4	أشعر أنني سيئة وتافهة للغاية
6- توقع العقاب		
	0	لا أشعر بأن هناك عقاباً يحل بي
	1	أشعر بأن شيئاً سيئاً سيحدث أو سيحل بي
	2	أتوقع بأن عقاباً سيقع علي بالفعل
	3	أستحق أن أعاقب
	4	أشعر برغبة في العقاب
7- كراهية النفس	0	لا أشعر بخيبة الأمل في نفسي
	1	يخيب أملي في نفسي
	2	لا أحب نفسي
	3	أشمئز من نفسي
	4	أكره نفسي
8- إدانة الذات	0	لا أشعر بأني أسوأ من أي شخص آخر
	1	أنتقد نفسي بسبب نقاط ضعفي أو أخطائي
	2	ألوم نفسي لما أرتكب من أخطاء
	3	ألوم نفسي على كل ما يحدث
9- وجود أفكار انتحارية	0	لا تنتابني أي أفكار للتخلص من نفسي
	1	تراودني أفكار للتخلص من حياتي ولكن لا أنفذها
	2	أفضل لي أن أموت
	3	أفضل لعائلتي أن أموت
	4	لدي خطط أكيدة للانتحار
	5	سأقتل نفسي في أي فرصة متاحة
10- البكاء	0	لا أبكي أكثر من المعتاد
	1	أبكي أكثر من المعتاد
	2	أبكي هذه الأيام طوال الوقت ولا أستطيع أن أتوقف عن ذلك

	3	كنت قادرة على البكاء ولكنني أعجز الآن عن البكاء حتى لو أردت ذلك
11- الاستثارة وعدم الاستقرار النفسي	0	لست منزعجة هذه الأيام عن أي وقت مضى
	1	أنزعج هذه الأيام أكثر قليلاً من أي وقت مضى.
	2	أشعر بالانزعاج والاستثارة دوماً
	3	لا تثيرني ولا تغضبني الآن حتى الأشياء التي كانت تسبب ذلك سابقاً
12- الانسحاب الاجتماعي	0	لم أفقد اهتمامي بالناس
	1	أنا الآن أقل اهتماماً بالآخرين عن السابق
	2	فقدت معظم اهتمامي وإحساسي بوجود الآخرين
	3	فقدت تماماً اهتمامي بالآخرين
13- التردد وعدم الحسم	0	قدرتي على اتخاذ القرارات بنفس الكفاءة التي كانت عليها من قبل
	1	أؤجل اتخاذ القرارات أكثر من قبل
	2	أعاني من صعوبة واضحة في اتخاذ القرارات
	3	أعجز تماماً عن اتخاذ أي قرار بالمرة
14- تغير صورة الجسم والشكل	0	لا أشعر بأن شكلي أسوأ من قبل
	1	أشعر بالقلق من أني أبدو أكبر سناً وأقل جاذبية
	2	أشعر بوجود تغيرات دائمة في شكلي تجعلني أبدو منفرة وأقل جاذبية
	3	أشعر بأن شكلي قبيح ومنفرة
15- هبوط مستوى الكفاءة والعمل	0	أعمل بنفس الكفاءة كما كنت من قبل
	1	أحتاج إلى مجهود خاص لكي أبدأ شيئاً
	2	لا أعمل بنفس الكفاءة التي كنت أعمل بها من قبل
	3	أدفع نفسي بمشقة لكي أعمل أي شيء
	4	أعجز عن أداء أي عمل على الإطلاق
16- اضطرابات النوم	0	أنام جيداً كما كنت من قبل
	1	أستيقظ مرهقاً في الصباح أكثر من قبل
	2	أستيقظ من 2 – 3 ساعات أبكر من ذي قبل وأعجز عن استئناف
	3	أستيقظ مبكراً جداً ولا أنام بعدها حتى إن أردت
17- التعب والقابلية	0	لا أتعب بسرعة أكثر من المعتاد

للإرهاق	1	أشعر بالتعب والإرهاق أسرع من ذي قبل
	2	أشعر بالتعب حتى لو لم أعمل شيئاً
	3	أشعر بالتعب الشديد لدرجة العجز عن عمل أي شيء
18- فقدان الشهية	0	شهيتي للطعام ليست أسوأ من قبل
	1	شهيتي ليست جيدة كالسابق
	2	شهيتي أسوأ بكثير من السابق
	3	لا أشعر برغبة في الأكل بالمرة
19- تناقص الوزن	0	وزني تقريباً ثابت
	1	فقدت أكثر من 3 كيلو غرام من وزني
	2	فقدت أكثر من 6 كيلو غرام من وزني
	3	فقدت أكثر من 10 كيلو غرام من وزني
20- تأثر الطاقة الجنسية	0	لم ألاحظ أي تغيرات حديثة في رغبتي الجنسية
	1	أصبحت أقل اهتماماً بالجنس من قبل
	2	قلت رغبتي الجنسية بشكل ملحوظ
	3	فقدت تماماً رغبتي الجنسية
21- الانشغال عن الصحة	0	لست مشغولاً عن صحتي أكثر من السابق
	1	أصبحت مشغولاً على صحتي بسبب الأوجاع والأمراض، أو اضطرابات
	2	أنشغل بالتغيرات الصحية التي تحدث لي لدرجة أني لا أستطيع أن أفكر
	3	أصبحت مشغولاً تماماً بأموري الصحية

شكراً لكم على حسن تعاونكم ونتمنى لطفلكم السلامة التامة

Annex (7): Aaron Beck Depression Inventory (English version)

Please mark the score that fits you from the items.

No.	Domain	Score	Item
1.	Sadness	0	I do not feel sad.
		1	1 I feel sad.
		2	I am sad all the time and I can't snap out of it.
		3	I am so sad and unhappy to a painful extent.
		4	I am so sad and unhappy that I can't stand it.
2.	Pessimism	0	I am not particularly discouraged about the future.
		1	I feel discouraged about the future.
		2	I feel I have nothing to look forward to.
		3	I feel I can't get-red of my troubles
		4	I feel the future is hopeless and that things cannot improve.
3.	Past failure	0	I do not feel like a failure.
		1	I feel I have failed more than the average person.
		2	I feel I did not achieve any meaningful thing.
		3	As I look back on my life, all I can see is a lot of failures.
		4	I feel I am a complete failure as a person.
4.	Loss of pleasure	0	I do not feel dissatisfied.
		1	I feel bored most of the time
		2	I don't enjoy things the way I used to.
		3	I don't get real satisfaction out of anything anymore.
		4	I am dissatisfied or bored with everything.
5.	Guilty feelings	0	I don't feel particularly guilty.
		1	I feel guilty a good part of the time
		2	I feel quite guilty most of the time.
		3	I feel guilty all of the time.
		4	I feel completely bad or worthless.

6.	Punishment feelings	0	I don't feel I am being punished.
		1	I feel something bad will happen to me.
		2	I feel I may be punished.
		3	I feel I am being punished.
		4	I feel deserve to be punished.
7.	Self-dislike	0	I don't feel disappointed in myself.
		1	I am disappointed in myself.
		2	I dislike myself.
		3	I am disgusted with myself.
		4	I hate myself.
8.	Self-criticism	0	I don't feel I am any worse than anybody else.
		1	I am critical of myself for my weaknesses or mistakes.
		2	I blame myself all the time for my faults.
		3	I blame myself for everything bad that happens.
9.	Suicide thoughts or wishes	0	I don't have any thoughts of killing myself.
		1	I have thoughts of killing myself, but I would not carry them out.
		2	I would like to kill myself.
		3	I would like to have my family die.
		4	I have plans to suicide.
		5	I would kill myself if I had the chance.
10.	Crying	0	I don't cry any more than usual.
		1	I cry more now than I used to.
		2	I cry all the time now.
		3	I used to be able to cry, but now I can't cry even though I want to.
11.	Irritability	0	I am no more irritable than usual.
		1	I am slightly more irritable now than usual.
		2	I feel irritated all the time.
		3	I am not irritated now by things that used to irritate me before.
12.	Loss of interest	0	I have not lost interest in other people.

		1	I am less interested in other people than I used to be.
		2	I have lost most of my interest in other people.
		3	I have lost all of my interest in other people.
13.	Indecisiveness	0	I make decisions about as well as I ever could.
		1	I put off making decisions more than I used to.
		2	I have greater difficulty in making decisions more than I used to.
		3	I can't make decisions at all anymore.
14.	Change in body image	0	0 I don't feel that I look any worse than I used to.
		1	I am worried that I am looking old or unattractive.
		2	I feel there are permanent changes in my appearance that make me look unattractive.
		3	I believe that I look ugly.
15.	Loss of energy	0	I can work about as well as before.
		1	It takes an extra effort to get started at doing something.
		2	I can't work about as well as before.
		3	I have to push myself very hard to do anything.
		4	I can't do any work at all.
16.	Changes in sleeping pattern	0	I can sleep as well as usual.
		1	I wake up in the morning feeling tired more than usual.
		2	I wake up 2 - 3 hours earlier than usual and find it hard to get back to sleep.
		3	I wake up several hours earlier than I used to and cannot get back to sleep.
17.	Tiredness and fatigue	0	I don't get more tired than usual.
		1	I get tired more easily than I used to.
		2	I get tired from doing nothing.
		3	I am too tired to do anything.

18.	Changes in appetite	0	My appetite is no worse than usual.
		1	My appetite is not as good as it used to be.
		2	My appetite is much worse now.
		3	I have no appetite at all anymore.
19.	Loss of body weight	0	I haven't lost any weight lately.
		1	I have lost more than 3 kilograms.
		2	I have lost more than 6 kilograms.
		3	I have lost more than 10 kilograms.
20.	Loss of interest in sex	0	I have not noticed any recent changes in my interest in sex.
		1	I am less interested in sex than I used to be.
		2	I have almost no interest in sex.
		3	I have lost interest in sex completely.
21.	Worry about health	0	I am no more worried about my health than usual.
		1	I am worried about physical problems like aches, pains, upset stomach, or constipation.
		2	I am very worried about physical problems and it's hard to think of much else.
		3	I am so worried about my physical problems that I cannot think of anything else.

Annex (8): Approval from Helsinki Committee

المجلس الفلسطيني للبحث الصحي

Palestinian Health Research Council

تعزيز النظام الصحي الفلسطيني من خلال مأسسة استخدام المعلومات البحثية في صنع القرار

Developing the Palestinian health system through institutionalizing the use of information in decision making

Helsinki Committee
For Ethical Approval

Date: 05/02/2018 **Number:** PHRC/HC/323/18

Name: RANIA J. BREEKA الاسم:

We would like to inform you that the committee had discussed the proposal of your study about: نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم حول:

Prevalence of Anxiety and Depression among Mothers of Newborns Admitted to Neonatal Intensive Care Units in Gaza Strip

The committee has decided to approve the above mentioned research. Approval number PHRC/HC/323/18 in its meeting on 05/02/2018 و قد قررت الموافقة على البحث المذكور عاليه بالرقم والتاريخ المذكوران عاليه

Signature

Member

Member

5/2/2018

Chairman

Genral Conditions:-

1. Valid for 2 years from the date of approval.
2. It is necessary to notify the committee of any change in the approved study protocol.
3. The committee appreciates receiving a copy of your final research when completed.

Specific Conditions:-

E-Mail:pal.phrc@gmail.com

Gaza - Palestine غزة - فلسطين

شارع النصر - مفترق العيون

Annex (9): Approval from MOH

State of Palestine
Ministry of health

دولة فلسطين
وزارة الصحة

التاريخ:06/03/2018
رقم المراسلة 199471

السيد : رامي عيد سليمان العبادله المحترم

مدير عام بالوزارة /الإدارة العامة لتنمية القوى البشرية - /وزارة الصحة

السلام عليكم ,,,

الموضوع/ تسهيل مهمة الباحثة/ رانيه بريكة

التفاصيل //
بخصوص الموضوع أعلاه، يرجي تسهيل مهمة الباحثة/ رانية جمال بريكة
الملتحقة ببرنامج ماجستير التمريض – تخصص تمريض صحة الأم والطفل - جامعة القدس أبوديس في إجراء بحث بعنوان -:
"Prevalence of Anxiety and Depression among Mothers of Newborns Admitted to Neonatal Intensive Care Units in Gaza Strip"
حيث الباحثة بحاجة لتعبئة استبانة من عدد من الأمهات اللاتي لديهن أطفال منومين في الحضانة في مجمع الشفاء الطبي ومستشفى غزة الأوربي ومجمع ناصر الطبي ومستشفى النصر للأطفال.
نأمل توجيهاتكم لذوي الاختصاص بضرورة الحصول على الموافقة المستنيرة من الأمهات اللاتي هن على استعداد للمشاركة في البحث ومن ثم تمكين الباحثة من التواصل معهم، بما لا يتعارض مع مصلحة العمل وضمن أخلاقيات البحث العلمي، ودون تحمل الوزارة أي أعباء أو مسئولية.
وتفضلوا بقبول التحية والتقدير،
ملاحظة / تسهيل المهمة الخاص بالدراسة أعلاه صالح لمدة 5 أشهر من تاريخه.

محمد ابراهيم محمد السرساوي
مدير دائرة/الإدارة العامة لتنمية القوى البشرية -

2018 / 3 / 12

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عنوان الدراسة: مدى انتشار القلق والاكتئاب لدى أمهات الأطفال حديثي الولادة المنومين في أقسام الحضانة في المستشفيات الحكومية بمحافظات غزة.

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ملخص الدراسة

يعتبر دخول الأطفال الخدج للعلاج في أقسام الحضانة من الأحداث الصادمة في حياة الأسرة وبخاصة الأمهات. هدفت الدراسة الحالية إلى معرفة مستوى كل من القلق والاكتئاب لدى أمهات الأطفال حديثي الولادة المنومين في أقسام الحضانة في محافظات غزة، واستخدمت الباحثة في هذه الدراسة المنهج الوصفي التحليلي وقد كانت عينة الدراسة عينة عرضية وتكونت عينة الدراسة من 195 سيدة من أمهات الأطفال المنومين في أقسام الحضانة (90 من مستشفى الشفاء، 75 من مستشفى التحرير، 30 من مستشفى غزة الأوروبي). ولجمع البيانات فقد استخدمت الباحثة مقياس تايلور للقلق Taylor Manifest Anxiety Scale، كما استخدمت مقياس أرون بيك للاكتئاب Aaron Beck Depression Inventory. وتم حساب ثبات أدوات الدراسة من خلال دراسة استطلاعية على عينة من 30 استبانة وكان معامل ألفا لمقياس تايلور للقلق 0.836 ومعامل ألفا لمقياس أرون بيك للاكتئاب 0.886.

ولتحليل البيانات فقد تم استخدام برنامج الإحصاء المحوسب SPSS وتضمنت المعالجات الإحصائية التكرار، النسب المئوية، المتوسط الحسابي، الانحراف المعياري، كما تم استخدام اختبار (ت) واختبار تحليل التباين الأحادي.

وبينت نتائج الدراسة أن متوسط أعمار الأمهات المشاركات في الدراسة 28.22، كما أن 24.6% من المشاركات في الدراسة كانت هذه أول ولادة لهن، 63.6% كانت ولادتهن طبيعية، 39% حاصلات على التعليم الجامعي، 90.3% لا يعملن خارج البيت، و85.1% من ذوات الدخل المتدني أقل من 1000 شيكل شهرياً.

كما أظهرت النتائج أن 52.8% من الأطفال كانوا من الذكور، و 48.2% كانوا من الأطفال الخدج (العمر الجنيني أقل من 37 أسبوع)، و30.8% كان وزنهم عند الولادة أقل من 2500 جرام.

بالنسبة لسبب الدخول إلى قسم الحضانة فقد تبين أن أكثر الأسباب انتشاراً كان الولادة المبكرة قبل 37 أسبوع بنسبة بلغت 30.8%، يليها اضطرابات الجهاز التنفسي بنسبة بلغت 28.2%، كما أن 71.8% من الأطفال مكثوا في قسم الحضانة ما بين 3 – 6 أيام.

بالنسبة لمدى انتشار أعراض القلق والاكتئاب فقد بينت النتائج أن 50.8% من الأمهات كن يعانين من أعراض القلق بدرجة كبيرة وكبيرة جداً، كما أن 38.5% من الأمهات كن يعانين من أعراض الاكتئاب بدرجة كبيرة وكبيرة جداً، كما تبين أن متوسط الدرجات العام على مقياس القلق بلغ 29.102 وبلغ المتوسط العام للدرجات على مقياس الاكتئاب 20.743، وتظهر هذه الدرجات وجود مستوى متوسط من القلق والاكتئاب لدى الأمهات المشاركات في الدراسة بشكل عام.

كما بينت النتائج أن مستويات كل من القلق والاكتئاب كانت أعلى لدى أمهات الأطفال المنومين في مستشفى ناصر بخانيونس. وبينت النتائج عدم وجود فروق ذات دلالة إحصائية في مستوى القلق تعزى لعمر الأم في حين أن مستوى الاكتئاب كان أعلى لدى الأمهات من الفئة العمرية 35 سنة فأكثر. وأظهرت النتائج عدم وجود فروق ذات دلالة إحصائية في مستويات كل من القلق والاكتئاب

تعزى لعدد مرات الولادة، طريقة الولادة (طبيعية / قيصرية)، المستوى التعليمي للأم، عمل الأم، والدخل الشهري للأسرة.

و بينت النتائج عدم وجود فروق ذات دلالة إحصائية في مستويات القلق والاكتئاب تعزى لجنس الطفل، سبب الدخول لقسم الحضانة، مدة المكوث في قسم الحضانة، في حين أن أمهات الأطفال الخدج (أقل من 37 أسبوع)، وذوي الوزن المنخفض عند الولادة (أقل من 2500 جرام) كانت مستويات القلق لديهن أعلى من الأمهات الأخريات، بينما لم توجد فروق دالة إحصائياً في مستويات الاكتئاب.

في الإجمال فقد بينت نتائج الدراسة أن نصف أمهات الأطفال المنومين في أقسام الحضانة يعانين من القلق بدرجة عالية إلى عالية جداً كما أن ثلث الأمهات يعانين من الاكتئاب بدرجة عالية إلى عالية جدا، وتظهر هذه النتائج الحاجة إلى دمج خدمات الصحة النفسية في المستشفيات من أجل الدعم وعلاج المشكلات النفسية لدى الأمهات.